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A MULTIVARIATE ANALYSIS OF THE EFFECTS OF THE VSI/SSB SEPARATION PROGRAM ON NAVY ENLISTED PERSONNEL

by

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ii

ABSTRACT

This thesis investigates the behavior of Navy enlisted personnel who were eligible for, and offered, early voluntary separation under one of two monetary incentive programs during FY1992. The two programs were the voluntary separation incentive (VSI) and the special separation bonus (SSB). The purpose is to identify the factors that influence (1) the voluntary separation decision and (2) the decision between the two programs. Multivariate logit models were estimated to explain the decision to accept a voluntary separation incentive and the decision of which program to accept. The results show that the statistically significant factors affecting the separation decision are consistent with simple economic theory. Recommendations regarding future implementation of the separation programs and for future research are provided.

TABLE OF CONTENTS

LIST OF TABLES

I. INTRODUCTION

A. IMPORTANCE OF THE STUDY OF SEPARATION INCENTIVE PAY AS A "FORCE SHAPING" TOOL

With the recent world changes and the decline in resources devoted to national defense, the United States is moving toward a smaller military force. For any organization faced with reducing its size the biggest money savings are achieved through personnel reductions. According to the Congressional Budget Office, reducing active duty military personnel by 500,000 would save $103.2 billion over five years, as compared with only $2.1 billion being saved over five years by the Navy retiring the four Iowa class battleships. [Ref. 1]

The Department of Defense is facing large scale personnel strength reductions as required by Section 402 of the National Defense Authorization Act for FY 1991. [Ref. 2] Cutbacks in active duty personnel are to be approximately 500,000 between 1989 and 1995, although actual cutbacks could eventually far exceed those currently planned. Because of the impact of outside events and congressional committees on final end strength numbers, the services cannot set their own force levels with assurance. [Ref. 1]

While the U.S. has reduced the size of its military many times in the past, this is the largest personnel drawdown in the history of the All-Volunteer Force (AVF) since its advent in 1973. The Department of Defense is committed to treating all military volunteers fairly during this force reduction. Because of the volunteer status

1

of service members, new policies and approaches must be used in this reduction compared to early ones during conscription periods.

Unlike civilian retirement, military retirement is not vested until an individual completes 20 years of service. In addition, military retirement begins as soon as a vested member leaves active duty regardless of age. In an effort to avoid involuntary separations that would deprive service members of expected retirement benefits, the Department of Defense is implementing a Voluntary Separations Incentive (VSI) and Special Separation Benefit (SSB) to induce selected members to resign prior to becoming retirement eligible. [Ref. 3]

The required 15 percent drawdown of active duty Naval personnel is being accomplished primarily through reduced accessions and normal attrition. Because of the numerous organization-specific skills required by the military, the military represents an internal labor market. Thus, unlike private companies that can rely on lateral transfer hires, military manpower must be home-grown. [Ref. 1] Excessive reductions in force achieved primarily through reduced accessions would worsen current imbalances in the structure of the force in terms of years of service, grade and skill levels. Increased imbalances could result in promotion stagnation, skill shortages, and higher personnel costs. [Ref. 4] Even with successful use of reduced accessions and other administrative measures, some additional nonvested service members, otherwise suitable to continue on active duty, will have to leave the service.

As the force is reduced, one goal is to treat service members fairly. The challenge will be to reshape the force so that personnel inventories and quality levels

match the requirements of the new smaller force structure. [Ref. 4] The "force shaping" concept deals with targeting specific pay grades, ratings and length of service cells to ensure there are no future skill or experience shortages in each cell. The "career force" is considered to be service members with six to 20 years of service. As personnel cuts become more likely, excess personnel will have to be squeezed out of the career force. Force shaping ensures promotion opportunities for those allowed to enter the career force. It also allows accessions to remain at sustaining levels, which keeps the force from becoming "hollow."

Policy guidance from the Assistant Secretary of Defense for Force Management and Personnel (ASD(FM&P)), Christopher Jehn, provided to the Service Secretaries on 3 January 1992, stated that, "The VSI/SSB shall be used extensively to minimize involuntary separations and to shape the force during the drawdown of the active force." [Ref. 5] The use of VSI/SSB in the Navy thus far has been limited primarily to avoiding involuntary separations and to structuring specific skill areas.

B. REGULATIONS GOVERNING THE USE OF VOLUNTARY SEPARATION INCENTIVE (VSI) AND SPECIAL SEPARATION BENEFIT (SSB) PROGRAMS

Congress authorized VSI/SSB in the National Defense Authorization Act for FY 1992 effective January 1, 1992. Specific procedures for eligibility, implementation and payment of VSI/SSB benefits are described below.

1. **Eligibility for VSI/SSB**

The Secretary of the Navy may offer a member of the Navy the opportunity to apply for VSI/SSB if the member meets the following criteria:

a. Has served on active duty for more than 6 years before December 5, 1991 and has completed his initial term of enlistment or initial period of obligated service prior to separation;

b. Has served at least 5 years of continuous active duty immediately preceding the date of separation;

c. Upon separation is not immediately eligible for retired or retainer pay based on his military service;

d. Is a Regular member, or if a Reserve, is on an active duty list; and

e. Meets such other requirements as the Secretary of the Navy may prescribe from time to time, which may include requirements relating to years of service, skill or rating, grade or rank, and remaining period of obligated service.

2. **Application for VSI/SSB**

Service members meeting the eligibility criteria may request to separate from active duty and accept an appointment or enlistment in, or transfer to, the Naval Reserve.

3. **Approval for VSI/SSB**

Eligible Service members are not automatically entitled to receive VSI/SSB based solely on their request. The Secretary of the Navy reviews all applications for voluntary separation and approves only those consistent with the "needs" of the Navy.

4. **Methods of Payments, Benefits, and Reserve Obligation**

   a. **Voluntary Separation Incentive (VSI)**

   (1) A Service member who is approved for separation under the VSI program is paid an amount equal to 2.5 percent of his or her monthly basic pay on the date appointed, enlisted, or transferred to the Naval Reserve, multiplied by twelve and multiplied again by his or her years of active service (YOS). Thus, the annual payment is calculated as follows:

   Annual VSI Payment = 2.5 percent x final monthly basic pay x 12 months x YOS

   (2) Service members who are approved for VSI are paid in annual installments commencing on their departure from active duty, and on each anniversary date thereafter. The total number of payments equals twice the number of years of active duty service, provided the member continues to serve in the Naval reserve for the duration of the payments.

   Members who are entitled to voluntary separation incentive payments who subsequently receive basic pay, compensation for inactive duty training, or disability compensation must forfeit an equal amount of the voluntary separation incentive pay.

   Members entitled to receive voluntary separation pay who subsequently qualify for retired pay or retainer pay will have deducted a portion of that retired or retainer pay equal to the VSI received. VSI annual payments will be discontinued if the member is separated from the Naval reserve, unless one of the following conditions applies:

(a)   In the event of the Service member's death, full VSI annual payments will continue to the Service member's beneficiaries.

(b)   In the event the Service member becomes ineligible to continue to serve in the Naval reserve due to medical, age, failure to select for promotion, or other reasons determined to be no fault of the member concerned, the member will be transferred to the Standby Reserve or the Retired Reserve of the Naval Reserve. The Service member will continue to receive annual VSI payments for the remaining period authorized, with applicable adjustments as may be required as provided below in paragraph 5.

b.   **Special Separation Benefit (SSB)**

(1)   A Service member approved for separation under the SSB program is paid a lump sum equal to fifteen percent of the monthly basic pay received on the date of his or her separation, multiplied by twelve and multiplied again by his or her years of active service.   Thus, the lump sum payment is calculated as follows:

Lump sum = 15 percent x final monthly basic pay x 12 months x YOS

(2)   Service members who are approved for SSB are eligible for the same transition benefits and services as members who are involuntarily separated, as provided for in Assistant Secretary of Defense (FM&P) memorandum dated June 7, 1991, "Policy Changes for Transition Assistance Initiatives, as amended."

(3)   Service members who are approved for SSB will enter into a written agreement with the Secretary of the Navy to serve in the Naval reserve for

6

a period of not less than 3 years following their separation from active duty. If the service member has a service obligation that is not completed at the time the member is separated from active duty, the 3 year obligation will begin on the day after the day the member completes his or her obligation.

(4)   Regular enlisted members eligible for SSB will submit their requests for separation under this program before the expiration of their term of enlistment or, upon discharge, enter into a written agreement not to request reenlistment in a regular component.

(5)   Members of the Navy, other than regular members, who are eligible for SSB will submit their request for separation under this program before the expiration of their term of active service.

5.   **Service members approved for separation under VSI/SSB are required to separate on or before September 30, 1995 [Ref. 5]**

These incentive programs provide the services with the flexibility to accomplish the following: reduce involuntary separations; maintain accessions at sustaining levels; align inventories with skill, grade and experience requirements; meet guidelines for promotion opportunity; and provide flexibility to respond to future unforeseen structure changes. [Ref. 4]

C.   FOCUS OF THESIS

As the Navy is reduced and reshaped, a major challenge will be to maintain a high state of readiness and still treat Navy service members fairly. Success in meeting this challenge will ultimately determine the impact of the drawdown on the

future force. [Ref. 4] By making effective use of the voluntary separation incentive programs, any adverse effects of the drawdown on service members can be reduced, if not eliminated.

The purpose of the analysis in this thesis is to develop a method of estimating the acceptance rate for the two separation programs. The thesis focuses specifically on the results of VSI/SSB offerings made to enlisted members of the Navy during FY 1992 in the four completed rounds. It analyzes and discusses projected outcomes of the offerings and compares the projected and actual outcomes. Information received through empirical analysis of data from the completed rounds will be used to develop a model that may be useful in predicting the "take rate" for those who may be offered the separation incentive programs in the future. The hope is that the information developed here will help manpower planners target separation bonus and make VSI/SSB a more effective force shaping tool.

The remainder of the thesis is divided into five chapters. Chapter II introduces the concept of drawdown in both the corporate world and in the military. This chapter reviews the literature relevant to the theory of personnel reduction. Most studies that have focused on drawdown relate to the civilian sector. Since a military drawdown of this magnitude in the environment of the All-Volunteer Force is unprecedented, the military literature reviewed deals with the Selective Reenlistment Bonus (SRB) as a possible indicator of the effect that monetary separation bonuses will have on separation behavior.

Chapter III presents the data and methodology used to study the effects of the voluntary separation incentive programs on the choices of Navy enlisted personnel. The strengths and weaknesses of the micro-level data are discussed as well as the restrictions or limitations imposed on the data for this analysis. The theoretical model chosen is explained and is used to specify an empirical estimating model. The categories of specific variables include demographic attributes of the enlisted personnel, Navy experience and background factors, and the availability of the separation incentive.

Chapter IV presents the results of the statistical analysis of the data. Multivariate logit regression models are estimated to obtain the direction and magnitude of the effect of each explanatory variable on the decision to accept/reject a voluntary separation incentive when it is offered. These models estimate the partial effect of the separation bonus program on the probability of acceptance, holding constant other factors, among service members who are eligible for the bonus.

Chapter V presents the development and analysis of a forecasting model to better predict "take rate" among individuals offered VSI/SSB. Alternative econometric models will be evaluated in terms of "goodness of fit" and other statistical measures to determine the most accurate model to be used for forecasting purposes.

Chapter VI summarizes the findings of the research and draws conclusions based on those findings. Policy recommendations are also presented based on the forecasting model developed through the research in this thesis.

D.   RESEARCH QUESTIONS

This thesis is primarily concerned with determining which factors most significantly influence the individual's decision to accept a voluntary separation incentive program. Other concerns include:

- Are there variables which can be used to develop a valid forecasting model of the "take-rate" for future program offerings of VSI/SSB and possible insight into a more effective incentive program?

- Are the VSI/SSB programs successful and cost-effective force shaping tools, given results of the completed rounds?

- Is the increased retention currently being experienced by the Navy an artificial effect occurring because personnel are waiting for the program to be offered at their YOS level, and what effect, if any will this have on projections on the "take rate" of future offerings?

- If future uses of voluntary separation incentive programs are needed beyond FY 1995, could VSI/SSB be used again successfully, considering the possibility that all those interested in such programs would have already taken them and left the service by FY 1995.

II. LITERATURE REVIEW

A. DISCUSSION

There are two reasons that explain why research on military downsizing efforts is scarce: first, current downsizing efforts are unprecedented for the All-Volunteer Force, which since 1973 has been primarily concerned with recruiting and retaining personnel; second, all past military demobilizations have dealt primarily with volunteers and draftees who were eager to return to civilian life after completing their military service in a specific conflict [Ref. 6:p. 129]. Fortunately, however literature is available that can provide information and insight into the impact of the specific reduction strategies being used in the current downsizing of the All-Volunteer Force.

The first source is civilian research on organizational decline, which is emerging as one of the most important areas being addressed by organizational researchers [Ref. 7:p. 3]. Environmental demands have led to the restructuring of many organizations through reconfiguring work flows, modifying communications and reporting channels, and downsizing the work force [Ref. 6:p. 30]. The increased use of downsizing as a form of adaptation to environmental constraints by organizations has caused an upsurge in the literature describing the phenomenon of work force or personnel reduction [Ref. 6:p. 1]. Many new terms have appeared in the organizational literature to describe this trend, including; reduction-in-force (RIF),

11

downsizing, demassing, decruitment, retrenchment and build-down. The second area of research that will be utilized deals with the effect of military financial incentives and benefits, specifically the Selective Reenlistment Bonus (SRB) program, on retention decisions. The SRB program has been used extensively by the military to successfully regulate the experience levels and skill-mix of the career force, i.e., as a force shaping tool [Ref. 8]. Because of the program's proven success, SRB research will be useful in identifying relationships between, and the effects of, variables involved in decisions to stay or leave the military under monetary separation incentive programs.

B. ORGANIZATIONAL DECLINE IN THE PRIVATE SECTOR

American manufacturing, "high-tech," steel and automobile industries have seen serious declines and the loss of millions of jobs in the past twelve years [Ref. 7]. Until recently, decline was viewed as a sign of a weak or failing organization by researchers. Most existing organizational theories supported this view with explanations of organizational effectiveness only in terms of growth. Unfortunately, growth is no longer inevitable.

Today's organizations are being driven by shrinking markets and overseas competition to implement downsizing actions to keep their organizations "current" and competitive. Decline is no longer being viewed by theorists as evidence of ineffectiveness, but rather as part of the normal life cycle of an organization [Ref. 6]. In addition to being a response to economic pressures, downsizing may also occur as a proactive strategy to improve organizational effectiveness and efficiency.

12

1. Management of the Reduction Process

The literature distinguishes between proactive and reactive responses by management to the downsizing process. The ability of management to handle the responsibilities of the reduction will determine how productive the organization will be when it emerges from the process [Ref. 9:p. 349]. Reactive responses are usually driven by the need for short-term cost savings without regard to long-term implications for the organization or its employees [Ref. 6:p. 7]. It is generally agreed upon by organizational researchers that a proactive response is the most successful approach for the health of the organization and in minimizing negative impacts on employees. Inasmuch as proactive adaptation begins early in the downsizing process, by definition, the organization has more time to plan; and as a result, more down-sizing strategies become available to them. [Ref. 6:p. 13]

Of all the responsibilities facing management during a work force reduction, a fundamental dilemma is deciding whether to favor equity or efficiency. Across-the-board cuts are attractive for short-term cost savings and enable management to avoid equity issues when selecting specific targets. However, if large cuts are required, an across-the-board strategy could irreparably damage the effectiveness of the organization. [Ref. 9:p. 349] Concerns about job security, coupled with shifts in overall organizational strategy, can build feelings of permanent insecurity and reduce employee commitment if the reduction is not perceived as equitable. The manner in which the organization terminates personnel will have a direct effect on those terminated, but also will influence the behavior and attitudes

of those who survive. [Ref. 6:p. 42] Maintaining morale is a major responsibility of management during the downsizing process because of the devastating effect reductions-in-force have on employees who remain. [Ref. 9:p. 349]

As Table 1 shows, most companies that engage in downsizing activities pay a heavy price in terms of reduced employee morale. Another factor affecting morale is that work force reductions seldom are a one time occurrence: an average of 63 percent of companies that downsize in a given year will do so again the following

TABLE 1

PERCENTAGE CHANGE IN MORALE, PRODUCTIVITY AND PROFITS AS AN AFTER-EFFECT OF DOWNSIZING

	Employee Morale	Worker Productivity	Operating Profits
Declined	77	28	24
Remained Constant	17	36	23
Increased	2	31	44

Source: [Ref. 10:p. 4]

year [Ref. 10:p. 4]. As morale, job security and commitment to the organization decline, the best people, who are by definition the most mobile, will leave the organization [Ref. 9:p. 349]. Also, because downsizing is frequently based on the need to make deep cuts in payroll costs rather than on improving the overall employee quality level, good performers along with weak ones will lose their jobs [Ref. 11:p. 50].

It is also the responsibility of management to continue to attract and keep quality employees during the downsizing process. An organization concerned with maintaining the morale, commitment and effectiveness of remaining employees may attempt less drastic downsizing strategies before turning to more extreme actions. In many cases, the use of voluntary separations may in fact eliminate the need for involuntary dismissals [Ref. 6:p. 19].

Additional responsibilities for management during the downsizing include keeping the reduction process innovative and developing support from sources of influence outside of the organization. For an organization involved in downsizing, the natural tendency will be to act conservatively. However, organizations faced with downsizing will find opportunities and resources are more available if they can be flexible and innovative. [Ref. 9:p. 350] If time and circumstances allow, the organization should strive to be as proactive in its approach to downsizing as possible.

Relationships with outside support structures are important to decisions on where to make the required cuts. The functions and units that the organization wishes to retain or strengthen will need continued outside support from current sources, or if necessary, development of new outside support. [Ref. 9:p. 350]

2. Strategies for Reducing Personnel

Which strategy an organization will use to reduce personnel is central to the success of downsizing. It is also a central concern of this thesis. Are monetary

separation incentive programs the most equitable and effective way to downsize the All-Volunteer Force?

Organizations that respond to environmental contingencies with reductions-in-force have a number of possible strategies depending upon considerations such as the length of time available to implement a strategy and monitor the outcome. Those that can be proactive in response to environmental demands have more options to choose from due to longer time frames and greater availability of resources. However, other important issues may limit possible downsizing strategies, including the organization's philosophy, legal constraints, and other influences outside the organization. A final consideration in the choice of downsizing strategies is the impact of various strategies on terminated and surviving employees. Again because of the time factor, a proactive organization will be more likely to consider strategy choice consequences and plan for possible outcomes. [Ref. 6:p. 42]

There are two general means of removing people from the payroll - either "pushing" or "pulling" them away [Ref. 11:p. 193]. "Push" strategies are the most direct, i.e., layoffs. In most cases layoffs do not make sense. They are high-cost rather than least-cost when looked at from the perspective of economics, legalities, and employee morale, and tend to harm organization-society relations. Most of the arguments against layoffs in fact come from morale and moral issues. [Ref. 12:p. 358]

Ideally, the selection of those to terminate should be based on each individual's performance and consideration of his or her potential contribution to the leaner, downsized organization. These decisions also must take into account the impact of different policies on the treatment of long-service, minority and female employees. [Ref. 11:p. 193]

"Pull" strategies produce less focused results, but are also less harsh. They generally involve offering, for a limited time, some inducement, early retirement or cash payment, to all or to a subgroup of employees encouraging them to resign voluntarily. Offering lump-sum buy-outs to those not eligible for retirement programs is also becoming common, although most organizations rely on retirement efforts because these pull away the higher paid employees, who are slowing down or blocking advancement opportunities for junior employees. [Ref. 11:p. 195] "Pull" strategies are sometimes linked with "push" approaches. The letter that invites personnel to consider early retirement or a buy-out may also warn of involuntary layoffs if the voluntary departure quotas are not met, (e.g., the "RIF hammer" behind VSI/SSB offers in the Army, and to a lesser extent the Air Force).

The simplest way to reduce the cost and pain of downsizing is to develop options to layoffs, whether they be voluntary or forced. A number of alternatives exist, as outlined in Figure 1, which show the sensible approach depends on both the magnitude of the reduction and the amount of lead time [Ref. 11:p. 199].

For companies that need to reduce payroll by fifteen percent or more almost immediately, few options are available other than deep, across-the-board

terminations. Luckily, relatively few organizations are in need of such a drastic turnaround. When immediate action needs to be taken but the magnitude of the reduction is less than fifteen percent, more options become available and dismissals can be more selective. [Ref. 11:p. 202]

Selective dismissals mobilize a downsizing mechanism most companies already have in place: their performance review system. Performance ratings can be an input into decisions about forced dismissals, which should help to avoid the equity issue. But for performance ratings to be useful they must also provide valid information. Many do not because the systems are undermanaged or are used primarily to make salary decisions, not to correct performance problems. [Ref. 11:p. 203]

The more time a company has to execute its downsizing plan, the more options that are available to reduce the work force and limit the need for costly and painful layoffs. The time available is sometimes limited by events outside the organization's immediate control, but more often than not these events can be anticipated and dealt with on the company's schedule, not the outside world's [Ref. 11:p. 205]. Figure 1 shows that greater reductions or cost savings are possible using these methods if they are managed over a longer period of time. Allowing more time permits the results of training and retraining investments to pay off [Ref. 11:p. 207].

Time Required for Implementation			
% Cut	Less than 1 Year	1-3 Years	3 Years
15+	• Deep across-the-board termina-tions.	• Spin off business units. • Series of early retirement or buy-out offers.	• Close down business units and redeploy employees. • Diversification based on skill of surplus employees.
6 - 14	• Widespread early retirement or buy-out program. • Bring subcontrac-ted work back in-house. • Pay reduction, job sharing, move to lower paying jobs.	• Mobilizing the troops. • Selective termina-tions. • Retrain, redeploy. • Retrain; find jobs outside the company. • Loan staff.	• Managed attrition. • Spin off staff departments.
1 - 5	• Selective termina-tions. • Targeted early retirement or buy-out program.	• Managed attrition. • Convert staff to consultants. • Market staff services outside the company.	• Managed attrition. (and many of the other options).

Figure 1. Alternative approaches to downsizing depending
on time available and size of required cut.

Note: Percentages indicate the approximate head-count or payroll reduction needed. Source: [Ref. 11]

Training investment is one of the biggest hidden costs associated with downsizing. Typically hard to quantify, it is incurred when a business loses many of

its managers and staff professionals. Over the years, these people have acquired what economist Oliver Williamson calls company-specific skills [Ref. 11:p. 198]. These skills are learned on the job, and encompass what it takes to get things done within a specific company environment. The hardest of these skills to transfer are those related to effective collaborative relationships that allow things to get done through personal trust, not bureaucratic procedures. [Ref. 11:p. 198]

Although reduction-in-force strategies usually directly affect only a small percentage of a firm's total work force, they have permanent consequences for the entire organization. When done repeatedly, reductions give false comfort about job security to remaining employees. Because of the impact on morale, quick strategies are often preferred to attrition, since attrition works over a longer time period [Ref. 11:p. 203]. Attrition, however, coupled with hiring freezes has helped many organizations slim down and should not be written off too quickly. In addition, there are ways to hasten attrition and thus make it a more viable realignment strategy. [Ref. 12:p. 364]

Many firms use early-retirement incentives to trim burdensome payrolls. The logic is that employees who are considering retirement anyway will choose to leave the firm when enticed to do so [Ref. 12:p. 364]. A problem with early retirement incentives, however, is that outcomes are very unpredictable. Logic does not always prevail in the complex decision by an employee to leave a firm. Firms almost always lose some of their "stars" when they offer early retirement. [Ref. 12:p. 364]

Among the actions companies take to alleviate work force reductions, early retirement incentives and voluntary separation plans show a definite upward trend. [Ref. 10:p. 3] Policies that seek to "share the pain" (shortened work weeks, frozen or reduced salaries) are on the decline. This trend is shown in Table 2.

TABLE 2. ACTIONS TO REDUCE LAYOFFS

Action	July 1989	June 1992
Hiring freeze	62.8	61.6
Demotions/transfer	11.0	44.2
Salary reduction/ freeze	46.2	35.1
Early retirement incentive	19.3	34.3
Voluntary separation plan	19.5	28.6
Voluntary job sharing	11.0	15.8
Mandatory short work week/day	24.1	15.3
Limited duration furlough	N/A	13.8
(Percents are of firms that downsized)		

Source: [Ref. 10:p. 3]

3.   Summary

Research shows that organizations that respond to environmental contingencies with reductions-in-force have a number of strategies to choose from, and that the length of time available to implement and monitor those strategies is a critical consideration in the choice. Organizations that are proactive in response to environmental demands may have more options to choose from due to longer time frames and greater available resources. However, certain issues may limit possible

downsizing strategies, including the organization's philosophy, legal constraints and outside influences. Another important consideration in the choice of downsizing strategies is the impact of various strategies on terminated and surviving employees. [Ref. 6:p. 42]

When a decision to downsize is followed by proactive planning, the organization will more likely achieve its goals. Part of proactive planning is to conduct an evaluation of the organization's needs for achieving its objectives and improving organizational effectiveness. This evaluation can determine what positions or functions should be cut when reductions are to be made. If objectives are not clear with regard to future needs, the results of downsizing are usually negative. [Ref. 6:p. 21]

Well-managed organizational downsizing can have several positive consequences for the organization that clearly improve organizational effectiveness, including decreased costs and increased efficiency. Problems may occur with early retirement and buy-out strategies if management underestimates the percentage of employees that take advantage of the benefits. The organization may go over budget or allow too many critical employees to leave. [Ref. 6:p. 74]

Organizations getting the most mileage out of personnel reductions have broader objectives than simple job elimination. For them, the overall goal is to build the most efficient and effective organization they can. While they plan the downsizing, these organizations choose among a wide range of objectives and tactics.

One main objective of successful organizations is to come out of the downsizing with a strong and committed workforce. [Ref. 11:p. 59]

Downsizing can result in negative consequences for the mental well-being of terminated and surviving employees. The organization's treatment of terminated personnel will largely determine the commitment of those who survive and its image for future employees. The most noticeable way an organization can prevent possible negative consequences of its downsizing strategy decisions is to provide information and intervention for terminated and surviving employees, and for the surrounding community. [Ref. 6:p. 79]

C.   DECLINE IN THE MILITARY

Although public sector agencies have different goals and reward systems than civilian organizations, growth is still an important objective they share. In the past, the bigger an agency and its budget, and the more rapid its growth, the more success-ful it was considered to be. Because of new fiscal realities retrenchment is confronted at all levels of government, and bureaus can no longer assume they will be allocated an increasing or even constant share of available resources. [Ref. 9:p. 348]

The United States has reduced the size of its military many times in the past; however, because of the volunteer status of today's service members, the current reduction is being planned and implemented with new strategies and policies in mind. In particular, an effort is being made to avoid involuntary separations that could deprive some service members of expected retirement benefits. With an eye toward

the goal of fairness, the Department of Defense is implementing programs designed to induce selected members to resign voluntarily prior to becoming retirement-eligible. [Ref. 3]

Past demobilizations help identify four issues concerning the design, implementation, and follow-up of demobilization that are relevant to the current reduction-in-force. First, demobilization plans should be coordinated with specific end-strength objectives. The build-down should facilitate maintaining a force with the proper mix of officer, enlisted, active and reserve manpower, and with the knowledge, skills and abilities required to meet national objectives. [Ref. 6:p. 125]

Second, demobilizations involve a significant public relations component. Public perception of the fairness of the implementation of the downsizing process and the targeting of specific groups to separate could have a profound effect on the success of the process.

A third consideration for future military objectives and appropriations is the direct impact of the demobilization on the relationship between the legislative branch and the military. Congressional mandates related to military affairs. Finally, demobilization plans should be consistent and fully communicated to all ranks of personnel, since directly or indirectly all personnel will be affected. [Ref. 6:p. 126]

For reductions to be effective, downsizing efforts must identify precise targets. Literature identifies three possible targeting strategies: 1) target specific functions and positions, 2) implement across-the-board reductions, and 3) target certain locations [Ref. 6:p. 127]. The first strategy applies to specific jobs, organizational

departments, or levels. Across-the-board downsizing refers to uniform reductions throughout the organization, while the targeting of locations confines the reduction-in-force to specific sites or facilities. These target decisions are associated with varying degrees of proactive management. Targeting functions and positions generally reflects a more proactive approach, while across-the-board strategies are more reactive. The focus of this thesis is to determine the usefulness of monetary incentive programs in effectively reducing the All-Volunteer Force to meet required end strength levels, while ensuring proper quality and skill mix of personnel, i.e., force shaping. Force shaping means pursuing policies that ensure personnel force structures evolve in accordance with manpower requirements. [Ref. 13:p. 19] This thesis will review the selective reenlistment bonus (SRB) program as a model of the effectiveness of a monetary incentive program and to determine what role monetary incentive programs should play in force shaping.

1. The Selective Reenlistment Bonus (SRB) Program

With the advent of the All-Volunteer Force in 1973, the focus of military personnel policy turned toward meeting military manpower requirements through the retention of highly trained personnel. In this setting, SRBs became an important element in a system of financial and non-financial incentives designed to make active military service more attractive. From 1974 to 1985, SRB expenditures for all uniformed services increased almost four fold, but still only accounted for 2.3 percent of total military compensation. [Ref. 14:p. 4]

The SRB program was designed specifically to offer an attractive monetary reenlistment incentive to improve manning in critical occupations. Research has found SRBs to be very effective in improving retention in particular skills; as bonuses increase, reenlistments increase and extensions fall. [Ref. 15:p. 26] Bonuses have successfully been used to shape the career force in terms of both size and skill composition. Other studies also suggest that this use of bonuses need not affect the number of personnel who continue on toward retirement eligibility, as many of those influenced by bonuses to stay an extra term are likely to leave upon completion of that obligation. This implies that increased use of bonuses at the first and second terms would likely result in a smaller portion of people entering the over-10 year group, enabling SRBs to be more effectively used to shape force structure. [Ref. 13:p. 19]

The SRB program is effective because of the ability to allocate funds specifically to prevent manpower shortages in occupations critical to the readiness of the force. [Ref. 16:p. iii] Many criteria are considered before a particular occupation is included in or excluded from the SRB program. Among these factors are: career manning requirements and projected inventory, costs of formal school training for replacement personnel, expected increase in retention if a bonus is offered, priority of the skill in terms of the overall mission of the service. [Ref. 17:p. 14]

General eligibility requirements for service members include; (1) having completed at least 21 continuous months but not more than 14 years of active Naval

service, (2) being eligible to reenlist or extend for three or more years in the regular Navy as specified in the MILPERSMAN, (3) not being entitled to or have not been paid readjustment, severance or separation pay, (4) being a petty officer or E-3 designated striker, and (5) being qualified for, and serving in a SRB rating/NEC, or being approved by COMNAVMILPERSCOM for the SCORE program or lateral conversion to a SRB eligible rating.

The SRB amount is computed as follows: Base pay x additional OBLISERV(in months) / 12 x Award level. [Ref. 18] The size of the bonus multiplier is set by the SRB Project Manager, based on recommendations of the Enlisted Community Managers. Bonus multipliers, or award levels, which range from 0 to 5, vary across zones, length of service and NECs. Zone eligibility criteria are as shown in Table 3.

TABLE 3. SRB ZONE ELIGIBILITY REQUIREMENTS

Zone	Completed at least	But not more than
A	21 months	6 years
B	6 years	10 years
C	10 years	14 years

Source: [Ref. 18]

A service member may only receive one Zone A, one Zone B, and one Zone C bonus during a career. The current ceiling set by Congress on an SRB award is 45,000 dollars, however the Navy has set its maximum award at 30,000 dollars. The

27

average bonus being currently paid is 6,062. SRBs are paid one half lump sum at the time of reenlistment, and the remainder is paid in equal installments on the anniversary dates of the reenlistment.

The manner in which the reenlistment bonus is paid has been found to be important to reenlistment rates. In particular, lump sum bonus effects are significantly different from the effects of installment bonuses and have a greater impact on the reenlistment rate than that of installment bonuses. [Ref. 16:p. 30] A study by Hosek and Peterson confirmed that lump sum bonuses are almost twice as effective in reducing the extension rate, and increasing reenlistment. Empirical results for the first term show lump sum bonuses produce greater increases in reenlistment and retention rates than installment bonuses of equal nominal size. [Ref. 16:p. 41]

Reenlistment bonuses are effective in increasing the reenlistment rate, decreasing the extension rate and increasing the retention rate. This pattern implies that higher reenlistment bonuses can increase the expected man years of active duty service. Lump sum bonuses, which have larger effects on those rates, produce greater expected man years than installment bonuses. [Ref. 16:p. 52]

Results of a study by Lempe indicate that significant differences exist between the factors affecting career intent across occupational categories. [Ref. 15:p. 31] For example, Lempe shows that eligibility for an SRB increases the probability of reenlistment for electronic technicians by 9.2%, but will have no effect on the retention of medical and dental personnel. The difference may be caused by

28

opportunities awaiting electronics technicians in the private sector relative to those waiting for medical and dental personnel. [Ref. 15:p. 91]

Large variations among ratings with regard to career intent and reactions to different bonus levels were also found in research by Siggerud. Civilian job opportunities and perception of ease with which civilian employment could be obtained after separation were given as reasons for leaving the military in associated occupational groups. [Ref. 19:p. 106]

The Annualized Cost of Leaving (ACOL) approach was used by Cymrot to study the relationship between reenlistment bonuses and retention for enlisted Marines. He predicted that increases in the bonus multiple would lead to an increase in reenlistment, other things equal. Bonus payments were found to have a significant impact on retention and reenlistment rates of enlisted Marines in the Cymrot study. [Ref. 8:p. 60] The magnitude of the effect of reenlistment bonuses also has been shown to vary widely among occupational groups (Lempe).

2. Summary

The design, implementation, and follow-up of downsizing programs discussed in the military downsizing literature are similar to those discussed by civilian researchers. Important considerations addressed in research on the SRB program equally apply to the use of the VSI/SSB programs in the current reduction-in-force. These considerations include, coordinating national objectives with end-strength objectives, and maintaining a force with identified knowledge, skill and experience levels required to meet those objectives.

In both civilian and military research the effects of societal-organizational relations on the ability of the organization to manage the downsizing process in a proactive and rational manner are discussed. A specific consideration in military research was the relationship between the military and Congress. The issues of employee morale and employees' perceptions of the fairness of the process and feelings of job security were shown to greatly affect the success of the downsizing process both in the civilian and military sectors. Research on the SRB program has confirmed the impact of monetary incentive programs on the decision by the service member to remain in the military. Similarities in the design, implementation and structure of the SRB program and the VSI/SSB program imply that results of analysis on the SRB program could be utilized to make inferences about the VSI/SSB program and its effect on the decision to leave the military. These inferences will be used as a starting point in the analysis to narrow the field of independent variables and, ultimately, to determine the effectiveness of the overall monetary separation incentive concept and the specific impacts of either the installment or lump sum bonus programs.

III. METHODOLOGY

A. DESCRIPTION OF DATA

Data on the population of bonus eligibles was obtained from ADP (PERS-10) through the Enlisted Program Manager (PERS-221) in Washington, D.C. The data set was created by combining the set of Naval enlisted personnel who were eligible for the four rounds of VSI/SSB offerings in FY92 with information on individuals who accepted and were approved for separation under one of the separation incentive programs. The merged data set contains 34032 observations and 48 variables.

Simple correlation analysis was conducted to determine correlates of ACCEPT and CHOICE, the dependent variables, and to check for potential multicollinearity problems among the independent variables. Also, frequencies and cross-tabulations were run as a descriptive analysis of all the variables.

The data set is defined and restricted by program eligibility requirements. The VSI/SSB program was offered to a specific group of enlisted service members. Eligibility requirements are listed for each of the four FY92 rounds in Appendix A. Generally, the restrictions were based on length of service, paygrade and rating, with some further specific restrictions listed for critical NECs.

The length of service window in the first phase had a maximum of 16 years for all ratings, with the lower limit ranging from 10 to 15 years depending on the specific

rating. In each of the next three rounds this window was widened to make a larger group of service members eligible. In the second round primarily the lower limits were adjusted downward for the majority of eligible ratings. In the third phase all upper limits were increased to 17 years of service and lower limits were dropped to 10 for the majority of eligible ratings. The length of service window was maintained at 10 to 17 years for the majority of ratings in the fourth round.

The length of service (LOS) variable is used in the empirical analysis even though the eligibility requirements have restricted the potential variation in this factor. It is assumed that, given the 10 to 17 year window, there is sufficient variation in the LOS variable to influence the dependent variable. In this analysis the four phases could not be separated for individual analysis. Thus, the data is an aggregate over the entire time period of FY92 indicating average behavior of the four phases. It is believed that this average will yield similar results in terms of direction and magnitude of effect that individual phase analysis would yield.

Paygrade was limited by eligibility requirements to E5 or E6, which coincides with length of service limitations. Because paygrade is restricted to E5 or E6 the variable for paygrade (PRESPG) is expected to show minimal variation. However, even though there is only a one paygrade difference, the PRESPG variable will be used in the analysis because of the importance paygrade plays in targeting those groups that will be offered separation incentives. PRESPG will be changed into a dummy variable (PAYGRADE) with E6 being equal to one. The effect of paygrade

is expected to be negative, indicating that the service member higher in grade will be less likely to accept separation under either program.

Eligible ratings were chosen based upon current manning levels and projected manning requirements. The ratings targeted by enlisted manpower planners are either currently overmanned or projected to be overmanned in the future. Of the total number of Navy ratings, 56 were targeted for inclusion in the FY92 offerings. For the purpose of analysis, ratings were classified into seven occupational groupings and a dummy variable was constructed for each. The ratings included in each grouping are shown in Table 4, along with the variable name of the group. These occupational groups will be used to analyze differences in the probability of accepting a separation incentive program across broad occupational categories.

TABLE 4. ELIGIBLE RATINGS BY OCCUPATIONAL GROUP

Rate Group	Ratings Included	Variable Name
Administrative	AK, AZ, DK, PN, YN, SK, JO	ADMRATING
Aviation	AD, AE, AM, AT, AS	AVRATING
Mechanical/Electrical	EN, MM, MR, IM, OM, HT, DC, EM, LI, DM	MECRATING
Support	DT, HM, PH, NC, RP, PC, SH, PR, MA, MS	SUPRATING
Technical	DS, ET, IC, DP, RM, CT	TECRATING
Combat	AW, FC, GM, FT, AO, WT, TM, MT, EW, ST, MN	COMRATING
Seamanship	AB, BM, QM, SM	SMNRATING

B. DEVELOPMENT OF MODEL

The theoretical model used in this thesis is based on several key findings. The actual leaving behavior and acceptance of a voluntary separation incentive program were modeled after research conducted on retention behavior. It is assumed that many of the key factors in the decision to stay in the military are applicable to the decision to leave. Also, factors were used in model development that were found to be significant in prior research on civilian downsizing under voluntary incentive programs. Based on the review of literature and existing research on military retention, the variables displayed in Table 5 were chosen or created from those available in the VSI/SSB data set. These variables were considered to be important factors in the decision to "take" voluntary separation.

Because of missing data in some of the original variables, the final data set that is used in the empirical analysis contains 31,872 observations, which represents 94 percent of the original data set size. Of these, 3,876 are the service members who are "takers" of VSI or SSB. There are 76 variables in the final data set. Definitions and expected signs of the variables that are used for descriptive or statistical analysis are discussed in the next section.

C. VARIABLE CONSTRUCTION AND DEFINITIONS

Variables that were expected to affect the decision to accept a separation incentive program were chosen based on the results of studies presented in the literature review, primarily from research on the effect of the SRB program on an individual's decision to stay in or leave the military. Explanatory variables were

TABLE 5. LIST OF VARIABLES USED IN THE MULTIVARIATE ANALYSIS, VARIABLES FROM THE ORIGINAL VSI/SSB USED TO CONSTRUCT THEM, AND THE VALUES OF THE CONSTRUCTED VARIABLES

VARIABLE	DEFINITION	CONSTRUCTED FROM	VALUES
ACCEPT	Accept voluntary separation	DODCODE, CORRECT PROGRAM	0- Do not accept 1- Accept vol/sep
CHOICE	Choice between VSI or SSB program	Same as above	0- SSB 1- VSI
LOS	Length of service	ADSDYR variable	10-17 YOS
CONTRACT	Time left on enlistment contract	EAOSYR variable	0-6 years
LASTPRMO	Time since last promotion	TIRYR variable	0-14 years
DEPLOY	Deployable or non-deployable duty	ONBDTYPE variable (PASTTYPE variable)	0- Not deployable 1- Deployable
BAC2BAC	Back to back deployable duty	DEPLOY1/2* *Deploy^2 is from PASTTYPE variable	0- Not back to back 1- Back to back deployable tours
MARRIED	Marital status	PRIDEP variable	0- Single/divorced 1- Married
CHILDREN	Number of children	PRIDEP variable	0-5 or more children
MILSPOUS	Military spouse	PRIDEP variable	0- Non-military spouse 1- Military spouse
ETHORGN	Ethnic origin	RACE and ETHNIC variables	
AFAMER	African American	ETHORGN/RACE variable	0- Not African American 1- African American
ASIAN	Asian	ETHORGN/RACE variable	0- Not Asian 1- Asian
HISPANIC	Hispanic	ETHORGN variable	0- Not Hispanic 1- Hispanic
ALLOTHER	Others	ETHORGN/RACE variable	0- Not other ethnic 1- Other ethnic
MALE	Gender	SEX variable	0- Female 1- Male
AFQT	Armed Forces Qual Test	AFQT variable	10-99 percent
HSGRAD	High school graduate	EDCERT variable	0- Non-grad/college 1- High school graduate
NONGRAD	Non H.S. graduate	EDCERT variable	0- Grad/college 1- Non-high school grad

TABLE 5 (CONTINUED)

VARIABLE	DEFINITION	CONSTRUCTED FROM	VALUES
COLLEGE	More than 12 years of education	EDCERT variable	0- Non-grad/hsgrad 1- College education
UNRATE	Unemployment rate of	HOR variable	2.4-14.9 percent

classified into six categories: tenure, occupational, activity type, demographic, education and economic.

1. Dependent Variables

The dependent variables were constructed from the DODCODE variable, or separation code, in the original file. There were 17 codes included in the original data file, fifteen of which were incorrectly utilized. The variable should have included only the KCA separation code, indicating those service members who had been authorized separation under the VSI incentive program, or the KCB separation code, indicating those service members who had been authorized separation under the SSB incentive program. Of the 4,119 total service members who were authorized for separation under VSI/SSB, 256 service members were miscoded.

By cross-matching social security numbers of the miscoded individuals with the VSI/SSB Encore Approved List it was possible to correctly code all 4,119 takers under either the KCA or KCB separation code. The PROGRAM variable was used to construct the two dichotomous dependent variables described below.

a. ACCEPT (accept a voluntary separation incentive program) is a dichotomous variable representing the actual behavior to either voluntarily leave military service under the VSI or SSB program, or not to separate. ACCEPT = 1

if the individual accepted and was approved for separation, and = 0 if he/she was eligible but did not accept or was not approved for separation.

In the original data set the number of service members who accepted and were approved for separation equaled 4,119, which is 12.1 percent of those eligible. The final number of takers in the data set after constructing all independent variables is 3,876, which is 12.2 percent of 31,872, the new total eligible.

b. CHOICE (The choice between separation programs). The second part of analysis deals with the decision between the VSI and SSB programs, the choice between installment versus lump sum payment plans. CHOICE = 1 if the service member accepted and was approved for the SSB program, and = 0 if he/she accepted and was approved for VSI. The original percentage split on the programs of 84.7/15.3 SSB/VSI, was almost identical to the 84.8/15.2 SSB/VSI split in the final "taker" total of 3,876. Thus, even though missing data reduced the number of observations of eligibles by 6 percent, the final data appears to be an accurate representation of the eligible population as well as of those who took voluntary separation and of those who took VSI versus SSB.

2. **Independent Variables**

a. **Tenure variables**

(1) LOS (Length of Service). Length of service is a continuous measure of the member's total time on active duty. It was computed by subtracting the ADSDYR (active duty service date year) variable from 1992, since this data set

37

has been restricted to VSI/SSB offers during FY 1992, and program offers began in January 1992.

$$LOS = (92 - ADSDYR)$$

LOS eligibility was defined by program specification for each of the four program offerings in 1992 as being between 10 and 17 years of service. Some observations in the original data set fell outside this eligibility window by one year either way, nine and 18 YOS, and those observations were incorporated into the 10 and 17 YOS groups, respectively. The assumption is that the service members with the nine or 18 YOS were close enough to either the 10 or 17 YOS point at the time of the program offering as to be considered eligible, i.e., within 10 to 17 YOS by the time the final submission date for requests occurred.

The expected sign of the LOS variable is negative; as the length of service increases, the tendency to separate decreases. Assuming that as individuals invest more time in an organization and accumulate more experience and information about their job, they come to a decision on whether or not they have made a "good match" with the job. As a result of this job-matching process, workers with longer tenure show that they have made the decision that a good match was made and tend to have lower quit rates. [Ref. 20:p. 373] Also, for those with longer tenure, at some point the expected financial incentive associated with a 20-year retirement offsets the value of the separation bonus.

(2)   CONTRACT (Years left on current contract).   The CONTRACT variable is a continuous variable indicating the number of years left on

the service members current contract. It was constructed by subtracting 1992 from the end of active obligated service year (EAOSYR) variable.

$$CONTRACT = EAOSYR - 92$$

The EAOSYR variable used to construct the CONTRACT variable listed 30 observations with EAOSYR dates prior to 1992. It is assumed that these service members were on some type of contract extension, or their EAOS was incorrectly entered. These observations were moved into the EAOS 1992 group, so that the years left on their current contract would equal zero, and they would be included with the EAOSYR 1992 group.

The expected sign of the CONTRACT variable is uncertain. Either an individual could view having more time left on his/her contract as an opportunity to "hold-out" for a better separation offer, or as a risk of possible RIF if Navy manpower reductions increase in the future. The threat of RIF was minimal in the Navy during FY92; however, perceptions of future job security are uncertain due to the outside influences of changing political and economic considerations. Also, the longer the time left on the current enlistment contract, the closer the individual is to the reenlistment decision that brought him on this current contract. If the service member has more recently reenlisted, the tendency to want to remain in the service may be greater.

(3)   LASTPRMO (Time since last promotion). The time in rate (TIRYR) variable was used to construct a continuous variable that measures the time since the last promotion.

$$LASTPRMO = (92 - TIRYR)$$

LASTPRMO is expected to have a positive sign, assuming that the longer it has been since one's last promotion, the more likely a service member will separate from the military. This assumes that the longer the time since the last promotion, the lower one's performance in the Navy, which may serve as an indicator of the service members view of their opportunities for further advancement within the military.

   (4) PAYGRADE (paygrade). A dummy variable for paygrade of service member, = 1 for paygrade E6, and = 0 otherwise. In this data set only E6 and E5 pay grades are present. The effect of PAYGRADE is expected to be negative; as one increases in paygrade he/she is less likely to voluntarily separate. Human capital theory suggests that as an individual experiences wage increases, i.e., promotions, they are less likely to quit their current job because quitting becomes more costly.

  b. **Occupational Variables**

   The 56 eligible Navy enlisted ratings were categorized into seven homogeneous occupational groups. Seven dummy variables were created, one for each occupational group, to estimate the differences in the decision to choose to voluntarily separate across occupations.

   The RATEGRUP variables were constructed using three sources to define specific occupational groupings. The first was research by Bepko, using econometric models on Navy petty officer retention [Ref. 21]. Bepko used the Navy enlisted occupational fields method of grouping ratings because he found, of the

methods he researched, it resulted in the most homogeneous groups. The occupational fields are descriptive of the work that the service member actually does, making them useful classifications. There are 24 occupational fields listed, however, this is too cumbersome a number for use in this analysis. To reduce the number of groups, research by Eitelberg was used [Ref. 22]. In his research he grouped military occupations based on the Department of Defense classification system, which groups ratings into 10 areas.

A third source was used in the final occupational grouping of the enlisted ratings. The question of marketability of the skill (rating) was assumed to be important for this analysis and was included in the definition of groupings. The Occupational Outlook Handbook was used to define enlisted ratings in terms of civilian occupations. This handbook, along with a cross-walk file which crosses military ratings/occupations with civilian occupation census data, was used to determine the marketability of the rating. Descriptions of the final occupational groupings follow.

The signs of the RATEGRUP dummy variables are expected to vary between the groups depending upon marketability of skills, promotion opportunities and deployability of the ratings within the groups, AFQT eligibility requirements and percentage of non-high school graduates within the groups.

(1)   AVRATING (aviation ratings). A dummy variable defining mechanical, structural and electrical maintenance persons in the aviation field.

41

AVRATING = 1 if the rating is AD, AE, AM, AT, or AS, and = 0 otherwise. The effect of AVRATING is expected to be positive.

(2)   MECRATNG (mechanical/electrical ratings). A dummy variable defining mechanical and electrical maintenance persons. MECRATNG = 1 if the rating is EN, MM, MR, IM, OM, EM, HT, DC, LI, DM, and = 0 otherwise. The effect of MECRATNG is expected to be positive.

(3)   ADMRATNG (administration ratings). A dummy variable defining administrative support ratings. ADMRATNG = 1 if the rating is AK, AZ, DK, PN, YN, SK, JO, and = 0 otherwise. The effect of ADMRATNG is expected to be positive.

(4)   TECRATNG (technical ratings). A dummy variable defining technical electronic, computer, or communications ratings. TECRATNG = 1 if the rating is DS, ET, IC, DP, RM, CT, and = 0 otherwise. The effect of TECRATNG is expected to be positive.

(5)   SUPRATNG (support ratings). A dummy variable defining medical, dental, service and support ratings. SUPRATNG = 1 if the rating is DT, HM, PH, PC, SH, PR, MA, MS, NC, RP, and = 0 otherwise. The effect of SUPRATNG is expected to be negative.

(6)   SMNRATNG (seamanship ratings). A dummy variable defining seamanship ratings specific to underway operations. SMNRATNG = 1 if the rating is AB, BM, QM, SM, and = 0 otherwise. The effect of SMNRATNG is expected to be negative.

(7)   COMRATNG (combat ratings). A dummy variable defining ratings considered military-specific because of their requirement for the combat/warfare missions of the Navy. COMRATNG = 1 if the rating is AW, FC, GM, FT, AO, MN, ST, WT, TM, MT, EW and, = 0 otherwise. COMRATNG will be used as the omitted condition for all the rating dummy variables. This is expected to be the least marketable rating group in the civilian sector because of the organization-specific skills required by these ratings.

c.   **Activity Variables**

(1)   DEPLOY (Deployable or non-deployable current activity). This variable is used as a proxy for family separation, which has been found to be a factor in military retention/separation decisions. The ONBDTYPE variable was used to construct the DEPLOY variable. DEPLOY = 1 if the activity is deployable, and = 0 otherwise.

Deployability is defined by the type of activity to which the service member is assigned. If the activity has the potential of leaving the area of it's home base (and the service member's family) for an extended period of time in order to perform it's mission, such as a ship, aviation squadron, or construction battalion, the activity was coded as deployable. The effect of DEPLOY is expected to be positive, assuming that family separation increases the probability that a service member will separate.

(2)   BAC2BAC (Back to back deployable duty assignments). The effects of having been assigned to consecutive deployable units will be analyzed to

43

look further into the family separation issue. The ONBDTYPE and PASTTYPE variables were used to create DEPLOY1 and DEPLOY2 variables, respectively, in order to determine if the service member had served on back-to-back deployable duty. BAC2BAC = 1 if DEPLOY1 and DEPLOY2 are both equal to one (deployable activities) and = 0 if either one or both are zero. The effect of BAC2BAC is expected to be positive, like the DEPLOY variable.

d. Demographic Variables

(1)   MARRIED (married). A dummy variable for married or not married, with the omitted condition being single or divorced. MARRIED = 1 if the member is married, with or without children, and = 0 if they are single or divorced, with or without children. The primary dependent (PRIDEP) variable was used to construct the variable for marital status.

The coefficient of MARRIED is expected to be negative, assuming that if a service member is married he or she will be less likely to separate from the service. This is based on previous studies which have found that married individuals tend to have higher reenlistment rates, so they are not expected to separate as often as single or divorced service members. [Ref. 15:p. 45]

(2)   MILSPOUS (military spouse). A dummy variable with MILSPOUS = 1 if the member is married to a military spouse, with children or not, and = 0 if the military member is married to a civilian, single or divorced. The effect of MILSPOUS is expected to be positive, indicating that a married service member with a military spouse will be more likely to accept voluntary separation.

The reason is based on the difficulties encountered in managing dual military careers. It is assumed that if one member is offered the opportunity to separate under an incentive bonus program he or she will accept the bonus and separate.

(3)   CHILDREN (number of dependent children). CHILDREN is a continuous variable for the number of children, from one to five or more. The variable was constructed from the PRIDEP variable and includes both single parents and married parents. Previous research on retention found that as service members gain more family responsibility they are more likely to stay in the service, other things equal. [Ref. 15:p. 45] Thus, the coefficient of CHILDREN is expected to have a negative sign, indicating that the more children a service member has, the less likely he or she is to separate.

(4)   ETHORGN (ethnic/origin). Past studies have found that minorities tended to reenlist at higher rates than whites [Ref. 15:p. 45]. The original data set contained a variable for RACE and one for ETHNIC. Six categories of RACE were listed, including unknown and other, and 22 ETHNIC categories were listed including none, unknown and other. A frequency distribution of RACE showed 70.7 percent Caucasian and of ETHNIC showed 80.3 percent claimed "none" as their ethnic origin.

The ETHORGN variable is a character variable that combines the RACE and ETHNIC variables into five categories, African American, Asian, Hispanic, other, and none. It was used in the development of the following racial/ethnic origin dummy variables that will be used in regression analysis.

(5)   AFAMER (ethnic origin/African American) is a dummy variable defining ethnic/racial origin of African Americans. AFAMER = 1 if the service member has claimed African racial or ethnic origin, and = 0 otherwise.

(6)   ASIAN (ethnic origin/Asian) is a dummy variable defining ethnic/racial origin of Asian Americans. ASIAN = 1 if the service member has claimed Asian racial or ethnic origin and, = 0 otherwise.

(7)   HISPANIC (ethnic origin/Hispanic) is a dummy variable defining ethnic/racial origin of Hispanic Americans. HISPANIC = 1 if the service member has claimed Hispanic racial or ethnic origin, and = 0 otherwise.

(8)   ALLOTHER (ethnic origin/other) is a dummy variable defining Americans of Indian, Alaskan, and other ethnic backgrounds. ALLOTHER = 1 if the service member has claimed Indian, other or unknown racial or ethnic origin, and = 0 otherwise.

(9)   MALE (gender) = 1 for male, and = 0 for female. Past research suggests that women are more likely to leave the military than men [Ref. 15:p. 63]. Married women also tend to have interrupted careers because of the increased value of home productivity once young children are added to the family. [Ref. 15:p. 235] Thus, it is reasonable, based on economic theory, to expect women to leave the military at higher rates than men. The expected sign of the MALE variable should therefore be negative.

e.   **Education Variable**

(1)   AFQT (Armed Forces Qualification Test) is a continuous variable of percentage scores on the Armed Forces Qualification Test (AFQT). Those with higher aptitudes should have greater opportunities in the civilian labor market, and thus a higher tendency to leave the military. The expected sign of this variable is positive.

The following variables were included to test the theory that individuals with more education have better civilian job opportunities, and as a result, tend to leave the military at a higher rate. [Ref. 15:p. 63]

(2)   MENTCAT (Mental category) is a character variable constructed from the AFQT scores. MENTCAT will be used for descriptive statistics only, to show if AFQT has any independent impact on the separation decision. The mental categories which group AFQT scores by percentile scores are listed in Table 6.

TABLE 6. MENTAL CATEGORY BY PERCENTILE AFQT SCORE

AFQT	MENTAL CATEGORY
93 - 99	I
65 - 92	II
50 - 94	IIIA
31 - 49	IIIB
10 - 30	IV

Source: [Ref. 15:p. 46]

47

(3)   NONGRAD (non-graduate of high school) is a dummy variable defining service members who either have not completed twelve years of high school, have a certificate of attendance, but not a diploma, or earned a general education diploma (GED). NONGRAD = 1 if the service member has less than a high school diploma, and = 0 otherwise.

(4)   HSGRAD (high school graduate) is a dummy variable defining twelve years of education with a high school diploma and those with a vocational certification. The assumption is that a high school diploma is required for vocational education. HSGRAD = 1 if the service member has a high school diploma, and = 0 otherwise.

(5)   COLLEGE (more than twelve years of education) is a dummy variable defining one year of college, or any post high school education up to and including associates, bachelors, masters and doctorate degrees. COLLEGE = 1 if the service member has education beyond a high school diploma, and = 0 otherwise. The COLLEGE variable will be the omitted condition in the analysis of educational effects.

f.   Economic Variables

(1)   UNRATE (unemployment rate of home of record) is a continuous variable constructed by assigning the unemployment rate for each state to each home of record listed in the HOR variable in the VSI/SSB file. The assumption was made that the probability of service members returning to their home of record upon release from active military service is high. Therefore, the

unemployment rate of the home of record would be a consideration in the decision to separate voluntarily or not. Unemployment figures were taken from the October 1992 EMPLOYMENT AND EARNINGS publication by the U.S. Department of Labor, Bureau of Labor Statistics, pp. 157-161.

The specification of the ACCEPT logit model is displayed below. The preliminary hypotheses about the effects of each variable are indicated by the expected sign of each variable.

$$
\begin{array}{cccccc}
- & + & - & - & - & - \\
\end{array}
$$
ACCEPT = f(AFAMER AFQT ALLOTHER ASIAN CHILDREN PAYGRADE

$$
\begin{array}{ccccc}
-/+ & - & - & - & + \\
\end{array}
$$
CONTRACT GENDER HISPANIC MARRIED MILSPOUS

$$
\begin{array}{cccccc}
- & - & + & + & - & + \\
\end{array}
$$
UNRATE NONGRAD LASTPRMO HSGRAD LOS ADMRATNG

$$
\begin{array}{cccc}
+ & +/- & - & - & + \\
\end{array}
$$
AVRATING MECRATNG SMNRATNG SUPRATNG TECRATNG)

The specification of the CHOICE logit model is displayed below. The preliminary hypotheses about the effects of each variable are indicated by the expected sign of each variable.

$$
\begin{array}{cccccc}
- & + & - & - & - & - \\
\end{array}
$$
ACCEPT = f(AFAMER AFQT ALLOTHER ASIAN CHILDREN PAYGRADE

$$
\begin{array}{ccccccc}
- & - & - & + & - & - \\
\end{array}
$$
MALE HISPANIC MARRIED MILSPOUS NONGRAD LOS

$$
\begin{array}{cccc}
+ & + & +/- & - \\
\end{array}
$$
ADMRATNG AVRATING MECRATNG SMNRATNG

$$
\begin{array}{cc}
- & + \\
\end{array}
$$
SUPRATNG TECRATNG)

49

A variable that is expected to be an important factor in the choice decision that cannot be analyzed at this time deals with the effect of non-pecuniary benefits packages that are an important part of the total incentive package. (See Appendix) The FY92 offerings showed great disparity between what was included in each of the program's benefits packages. The VSI benefits package contained only pre-separation counseling, employment assistance and relocation assistance for service members stationed overseas. The SSB package was a much more complete transition package including transition health care, commissary and exchange privileges, and priority Reserve and National Guard affiliation. Since all four offerings in FY92 were made with the same benefit packages, analysis of the impact the differences in them had on the choice decision cannot be made. Also, since no separation questionnaire data is available, how the benefits packages weighed in the individual's decision process between the two programs cannot be assessed.

IV. RESULTS OF ANALYSIS

A.   METHOD OF ANALYSIS

This chapter presents a description of and the results from analysis of the variables described in Chapter III. It will also interpret the results in an attempt to answer the major research questions of this thesis.

A multivariate data analysis will be performed to study the effects of factors that influence the decision Navy enlisted personnel make to stay or voluntarily separate under an incentive program, and which program they choose. Multivariate logit regression models will be estimated to obtain the direction and magnitude of the effect of each variable on the decision to accept/reject a voluntary separation incentive when it is offered. These models estimate the effect of the separation bonus program, holding other factors constant. The categories of specific explanatory variables include demographic attributes, experience and background factors, and the eligibility requirements for the separation incentive programs.

The analysis will include specification and estimation of a multivariate (LOGIT) model to predict future "take rates" by groups of ratings or enlisted communities. The models will also estimate the probability that one program is chosen over the other. The specific area of concentration of the analysis will be the effectiveness of the programs as force shaping tools.

Several statistical techniques will be used for preliminary analysis of the data from the four competed rounds, including t-tests of means and cross-tabulations. These preliminary analyses will provide information on the independent variables important to the "takers" of the programs. These variables and other socioeconomic variables will also be used to construct the multivariate (LOGIT) model to explain choice behavior. Multivariate data analysis was used to quantify the relationships between the set of explanatory variables and the binary dependent variables, ACCEPT and CHOICE.

The logit model was chosen over alternatives such as the linear probability model or the probit model because; (1) the logit model restricts the probabilities between zero and one while the logit itself remains unbounded, (2) although the logit is linear in X, the probabilities are not; this allows for the change in probabilities to taper off as the values of the explanatory variables increase or decrease indefinitely, and not increase or decrease linearly with X. [Ref. 23]

The model is based on the cumulative logistic distribution function and yields:

$$P_i = 1/[1 + e^{-(\Sigma \beta_i X_i)}],$$

where P_i = the probability of (1) accepting voluntary separation,

or (2) choosing the VSI program to separate under.

X_i = a row vector of individual and Navy-specific characteristics.

β_i = a column vector of parameters to be estimated. [Ref. 23]

It can be shown that if Pi is the probability of accepting voluntary separation/choosing the VSI program, and $1-P_i$ is the probability of not choosing voluntary separation/choosing the SSB program, then

$$L_i = \ln[P_i/(1-P_i)] = \beta_i X_i,$$

where L_i, or the log of the odds ratio, is called the logit. [Ref. 23] Maximum likelihood estimation (MLE) is used to estimate model coefficients. The software package used was SAS, Release 6.07.

Logit modeling is a procedure that has come to be accepted in most social science disciplines as the correct methodology when one wishes to perform regression-type analysis with dichotomous dependent variables. In contrast to ordinary least squares regression which fits the data to a line, logit analysis models the data as an s-shaped curve. Specifically, it uses a linear combination of the independent variable s to calculate a value L for each observation. Then it plots P as a function of L according to the following equation;

$$\ln(P/\{1-P\}) = L,$$

where P = (the probability that the dependent variable is 1), and L = a+bX, a linear combination of the independent variables. [Ref. 24]

Logistic regression coefficients are difficult to interpret because of the way the b's are reported; $\ln(p/\{1-P\}) = a+bX$. Logistic regression coefficients tell you that a one-unit change in an independent variable will result in a b-unit change in the natural logarithm of the ratio of the probability that the dependent variable is one to one minus the probability that the dependent variable is one. In order to more

efficiently interpret the coefficients, the left-hand side of the equation is simply referred to as "log odds." Thus the interpretation becomes a one-unit change in an independent variable results in a b-unit change in the log odds of the dependent variable. Because of the difficulty with understanding and interpreting natural logarithms, another statistic, the marginal probability, is calculated to interpret the estimated coefficients from the logistic regressions. [Ref. 24]

Marginal probability is a statistic that reflects what effect a one unit change in an independent variable will have directly on the probability that the dependent variable is one. The key to understanding logistic regression, then, is to solve for P, since P is simply interpreted as the estimated probability that the dependent variable is one. Solving for P yields the following equation [Ref. 24];

$$P = 1/[1 + \exp(-\{a + bX\})].$$

To compute the marginal probability associated with an independent variable, first compute P for each observation. Then, change the value of a given independent variable by one unit and recompute P with the new value. The marginal probability with respect to the chosen independent variable is then simply the difference between the two P's. This marginal probability is computed for each case, and the mean of this statistic across all cases is then reported. [Ref. 24]

Logit models were estimated for all ratings combined and then separately for each of the seven rating groups. This allowed an assessment of differences in the effects of each explanatory variable across occupational groupings.

B.   BIVARIATE ANALYSIS

This section describes the data for four populations from the original data set: (a) personnel offered a voluntary separation incentive, $N = 31,872$; (b) personnel who accepted voluntary separation, $n = 3,876$; (c) personnel who did not accept, $n = 27,996$; and (d) personnel who chose the VSI program $n = 589$. The means, which indicate the distribution of characteristics across the sample, of the explanatory variables used later in the multivariate model are presented for these four populations in Table 7. They indicate that personnel with higher AFQT scores are the ones making the decision to separate and are choosing the VSI program. Married members are represented in near equal proportions in all four populations.

Enlisted males are 89.6 percent of the eligible population, which means that enlisted females make up 10.4 percent. This is slightly higher than the overall Navy percentage of 9.7 percent enlisted females. [Ref. 25:p. P14] There is a higher percentage of males among those eligible not separating than among those separating.

There is a smaller proportion of minorities among those eligible separating than among those not separating. The percentages of African Americans, Asians and other ethnic groups are higher in the eligible population than in the Navy as a whole. In the Navy 17.7 percent of service members are African American; of the eligible population they are 21.6 percent. One percent of the overall Navy population falls in the ethnic group that includes American Indians and Alaskan Natives; in the eligible population, however, they are 6.5 percent. Asians are 4.6 percent of the

TABLE 7

MEANS OF RELEVANT VARIABLES BY GROUP

	ELIGIBLE	SEPARATED	NOT SEPARATED	ACCEPTED VSI
N	31872	3876	27996	589
VARIABLE				
AFQT	58.473	60.646	58.173	63.533
AFAMER (%)	0.216	O.138	0.227	0.087
ASIAN (%)	0.049	0.021	0.158	0.020
ALLOTHER (%)	0.065	0.061	0.066	0.085
HISPANIC (%)	0.042	0.036	0.042	0.032
MARRIED (%)	0.792	0.765	0.796	0.725
MILSPOUS (%)	0.054	0.070	0.052	0.095
CHILDREN (#)	1.492	1.494	1.492	1.378
MALE (%)	0.896	0.861	0.901	0.832
CONTRACT (years)	2.228	1.776	2.290	1.691
PAYGRADE (%)	0.702	0.588	0.718	0.654
LASTPRMO (years)	4.569	4.691	4.552	5.090
LOS (years)	12.875	12.669	12.903	13.654
UNRATE (%)	7.357	7.179	7.382	7.154
NONGRAD (%)	0.141	0.187	0.134	0.165
HSGRAD (%)	0.820	0.781	0.825	0.790
ADMRATNG (%)	0.160	0.070	0.158	0.166
AVRATING (%)	0.148	0.152	0.147	0.177
MECRATNG (%)	0.161	0.144	0.163	0.132
SMNRATNG (%)	0.081	0.085	0.081	1.000
SUPRATNG (%)	0.152	0.125	0.155	0.151
TECRATNG (%)	0.175	0.172	0.175	0.177
ACCEPT (%)	0.122	1.000	--	1.000
CHOICE (%)	--	0.152	--	1.000

Source: Derived from data obtained from Bureau of Personnel

56

overall Navy, and 4.9 percent of the eligible population. Hispanics are 6.5 percent of the overall Navy, and 4.2 percent of the eligible population. [Ref. 25:p. P12]

Cross-tabulations were run on the ACCEPT and CHOICE models between the RATEGRUP dummy variables and the LOS variable. Results are shown in Table 8. This table shows the percentage distribution of service members by occupational grouping and length of service for each of three separate populations; those offered, those who accepted either program, and those who chose VSI over SSB.

Table 8 displays the results of the bivariate analysis by RATEGRUP and LOS for each of three of the populations. The five highest and five lowest take rates from Table 8 are shown below. Also shown is the percentage of each of the top and bottom rating groups that was offered separation:

RATING GROUP	LOS	PERCENT TAKERS	PERCENT OFFERED
Top Five			
Technical	10-11	44.2	35.3
Combat	10-11	42.0	33.1
Seamanship	10-11	36.0	37.8
Mechanical	10-11	35.0	33.9
Aviation	10-11	34.3	25.5
Bottom Five			
Mechanical	16-17	11.1	10.4
Technical	16-17	10.6	11.0
Aviation	16-17	10.4	12.0
Administration	16-17	9.4	12.9
Combat	16-17	9.1	10.6

TABLE 8

OCCUPATIONAL GROUP BY LENGTH OF SERVICE (LOS)

a. Percent Distribution Eligible					
	LOS				
RATEGRUP	10-11	12-13	14-15	16-17	TOTAL
ADMIN	28.4	32.1	26.6	12.9	100
AVIATION	25.5	33.2	27.3	12.9	100
COMBAT	33.1	31.8	24.5	12.9	100
MECHANICAL	33.1	32.7	23.1	10.4	100
SEAMANSHIP	37.8	28.6	23.4	10.3	100
SUPPORT	21.0	32.1	31.0	15.9	100
TECHNICAL	35.3	30.0	22.8	11.0	100
b. Percent Distribution Takers					
	LOS				
RATEGRUP	10-11	12-13	14-15	16-17	TOTAL
ADMIN	33.1	30.0	27.3	9.4	100
AVIATION	34.3	31.1	24.0	11.1	100
COMBAT	42.0	28.8	20.2	9.1	100
MECHANICAL	35.0	30.0	24.0	11.1	100
SEAMANSHIP	36.0	27.9	24.9	11.0	100
SUPPORT	23.9	29.2	31.9	15.0	100
TECHNICAL	44.2	27.4	17.7	10.6	100
c. Percent Distribution VSI Takers					
	LOS				
RATEGRUP	10-11	12-13	14-15	16-17	TOTAL
ADMIN	17.4	28.6	38.8	15.3	100
AVIATION	12.4	30.5	36.2	21.0	100
COMBAT	23.0	20.7	36.8	19.5	100
MECHANICAL	18.0	26.9	32.1	23.1	100
SEAMANSHIP	17.9	28.6	25.0	28.6	100
SUPPORT	12.4	20.2	48.3	19.1	100
TECHNICAL	21.2	25.0	31.7	22.1	100

Source: Derived from data obtained from Bureau of Personnel.

The top take rate (44.2 percent) is in the technical group, LOS 10-11 years, followed by combat, LOS 10-11 (42.0 percent), and seamanship, LOS 10-11 (36.0 percent). The mechanical and aviation groups follow with the next high take rates of 35.0 and 34.3 percent respectively, both in the LOS 10-11 cells. The support rating group does not follow expectations or the findings of regression analysis in that the highest percentage take rate, 31.9, is in the LOS 14-15 year cell, not a lower length of service cell.

Overall, the highest VSI take rate falls in the LOS 14-15 cell for all but one rating group, seamanship, which supports the hypothesis that older (which is correlated with length of service), less present-oriented individuals are more likely to accept installment payments. However, the VSI take rate in the LOS 16-17 cell drops off dramatically, indicating that VSI is not viewed as adequate compensation when compared to the value of retirement.

This lower take rate for VSI in the highest LOS cell also may be correlated with the different non-pecuniary benefits packages that were being offered with the two programs in the FY92 rounds. (See Appendix) The SSB benefits package contained non-pecuniary benefits that were closer in type and number to those that are offered at retirement, and may have been perceived as worth more than the additional monetary compensation paid by the VSI program.

Cross-tabulations were also run for take rate by occupational groupings and by education. The results are shown in Table 9. The highest proportion of high school graduates by rating group is in the technical ratings (86.3 percent), which is not surprising considering the high eligibility requirements for entrance into technical

rates. The highest proportion of non-high school graduates is in the seamanship ratings, 23.8 percent. Percentages of high school graduates in the "taker" population for all rating groups are less than in the overall eligible population, indicating that the Navy is not losing a disproportionate share of high school graduates. The percentages of non-high school graduates in the "taker" population for all rating groups exceed the percentages in the overall eligible population, indicating that the Navy is disproportionately separating non-high school graduates.

Cross-tabulations were also run for take rate by occupational groupings and by deployability. The results are shown in Table 10. The highest proportion of deployable assignments by rating group in the eligible population is in the aviation ratings (56.9 percent), followed by seamanship and mechanical, with 55.8 and 55.7 percent, respectively. The highest proportion of service members who have been assigned to back-to-back deployable assignments is the same as for deployable assignments; aviation, 14.3 percent, seamanship, 12.8 percent and mechanical, 12.2 percent.

The highest take rate for deployable assignments is for seamanship, 54.9 percent, which includes the most sea-intensive ratings. The next two highest take rates were also in the top three rating groups in the eligible population, mechanical; 52.0 percent, and aviation, 51.3 percent. The highest acceptance percentage among back-to-back deployable assignments is the aviation ratings, 13.1 percent. This is to be expected because aviation represents the category with the largest percentage of those offered. The lowest percentage of deployable assignments is in the

TABLE 9

OCCUPATIONAL GROUP BY EDUCATION

a. Percent Distribution Eligible				
EDUCATION				
RATEGRUP	HSGRAD	NONGRAD	COLLEGE	TOTAL
ADMIN	80.4	12.4	7.2	100
AVIATION	81.7	15.3	3.0	100
COMBAT	80.1	16.8	3.2	100
MECHANICAL	84.2	12.2	3.6	100
SEAMANSHIP	75.2	23.8	1.0	100
SUPPORT	81.6	14.4	4.0	100
TECHNICAL	66.3	9.6	4.1	100
b. Percent Distribution Takers				
EDUCATION				
RATEGRUP	HSGRAD	NONGRAD	COLLEGE	TOTAL
ADMIN	70.6	16.5	9.6	100
AVIATION	76.9	20.0	2.2	100
COMBAT	76.7	21.4	1.9	100
MECHANICAL	79.2	18.5	2.3	100
SEAMANSHIP	70.6	28.2	1.2	100
SUPPORT	77.2	20.4	2.4	100
TECHNICAL	84.6	10.8	4.6	100
c. Percent Distribution VSI Takers				
EDUCATION				
RATEGRUP	HSGRAD	NONGRAD	COLLEGE	TOTAL
ADMIN	80.6	12.2	7.2	100
AVIATION	79.1	19.1	1.8	100
COMBAT	79.3	18.4	2.3	100
MECHANICAL	79.5	15.8	2.5	100
SEAMANSHIP	64.3	32.1	3.6	100
SUPPORT	77.5	16.9	5.6	100
TECHNICAL	81.7	10.6	7.7	100

Source: Derived from data obtained from Bureau of Personnel

TABLE 10

OCCUPATIONAL GROUP BY DEPLOYABILITY

a. Percent Distribution Eligible			
DEPLOYABILITY			
RATEGRUP	DEPLOY1	BAC2BAC	OTHER	TOTAL
ADMIN	40.2	8.6	58.3	100
AVIATION	56.9	14.3	28.8	100
COMBAT	41.8	9.0	41.1	100
MECHANICAL	55.8	12.8	32.1	100
SEAMANSHIP	55.8	12.8	31.4	100
SUPPORT	40.6	8.6	50.8	100
TECHNICAL	40.9	6.5	52.6	100
b. Percent Distribution Takers			
DEPLOYABILITY			
RATEGRUP	DEPLOY1	BAC2BAC	OTHER	TOTAL
ADMIN	35.8	7.1	57.1	100
AVIATION	51.3	13.1	35.6	100
COMBAT	41.8	6.5	51.7	100
MECHANICAL	52.0	9.7	38.3	100
SEAMANSHIP	54.9	9.4	35.7	100
SUPPORT	43.8	8.4	47.8	100
TECHNICAL	36.3	9.4	58.3	100
c. Percent Distribution VSI Takers			
DEPLOYABILITY			
RATEGRUP	DEPLOY1	BAC2BAC	OTHER	TOTAL
ADMIN	40.2	8.6	63.9	100
AVIATION	52.4	14.3	33.3	100
COMBAT	36.3	7.1	43.6	100
MECHANICAL	38.5	9.4	53.8	100
SEAMANSHIP	57.1	7.1	35.8	100
SUPPORT	33.7	5.6	60.7	100
TECHNICAL	40.4	3.9	55.7	100

Source: Derived from data obtained from Bureau of Personnel

administrative ratings, 40.2 percent, which likewise has the lowest "take" rate, 35.8 percent.

In general, the "take" rate percentages are lower than the percentages of the population offered, except in the support ratings, where 40.6 percent were offered and 43.8 percent voluntarily separated. This indicates that generally the deployability and thus family separation issues are not important factors in the decision to separate.

Cross-tabulations were also run for take rate by occupational groupings and by gender. The results are shown in Table 11. Consistent with the overall eligible population, the highest proportion of takers are males in every rating group. However, females consistently show a higher percentage "take-rate" compared to their percentage of the overall population than males, while male "take-rate" percentages are lower in all cases than their overall percentages.

The percentage of eligible females within the rating groups reflect their rating groups participation in the Navy as a whole, where women's jobs fall most often in the health care, administrative and technical skill areas [Ref. 25:p. P14]. The greatest female participation by rating group is in the administrative ratings at 25.3 percent, followed by the technical ratings at 16.1 percent, and support rating group at 14.0 percent.

Cross-tabulations were also run for take rate by occupational groupings and by mental categories. The results are shown in Table 12. The table shows that in the eligible rating groups, personnel are found mostly in mental categories II, IIIA and

IIIB. The percentage take rates indicate that the Navy is not disproportionately separating personnel in mental category IIIA or IIIB. There is however a disproportionate percentage of personnel in mental category I separating, and even more so in mental category II. Mental category IV personnel tend to remain in the service.

C.   MULTIVARIATE MODEL OF ACCEPT DECISION

The purpose of this multivariate model is to identify the factors affecting the decision of eligible enlisted members to accept a monetary incentive program and voluntarily separate or to stay. The multivariate model examines the marginal effect of each explanatory variable, holding constant all of the other factors. The ACCEPT model contains 31,872 observations, representing service members who were eligible for the four FY92 offerings (2,160 observations were lost due to missing variables in the original VSI/SSB data set). The dependent variable represents a binary choice, to accept or not. This choice was modeled as a function of tenure, occupation, assignment background, demographic, educational and economic variables. Table 13 lists the ordinary least squares (OLS) coefficients of each variable and the LOGIT coefficient along with the Wald Chi-square and significance level. The effects of the explanatory variables on the probability of voluntarily separating are discussed below.   The AFQT variable is significant at the 99% level. However, the logit coefficient is very small, indicating that the effect of a one-unit increase in AFQT on the separation decision is nil, less than 1 percent. However, if AFQT were to

TABLE 11

OCCUPATIONAL GROUP BY GENDER

a. Percent Distribution Eligible			
GENDER			
RATEGRUP	MALE	FEMALE	TOTAL
ADMIN	74.7	25.3	100
AVIATION	95.0	5.0	100
COMBAT	99.0	1.2	100
MECHANICAL	97.9	2.1	100
SEAMANSHIP	96.9	3.1	100
SUPPORT	86.0	93.3	100
TECHNICAL	83.9	40.8	100
b. Percent Distribution Takers			
GENDER			
RATEGRUP	MALE	FEMALE	TOTAL
ADMIN	65.7	34.3	100
AVIATION	91.9	8.1	100
COMBAT	98.8	1.2	100
MECHANICAL	95.9	3.1	100
SEAMANSHIP	95.5	4.5	100
SUPPORT	82.1	17.9	100
TECHNICAL	80.5	19.5	100
c. Percent Distribution VSI Takers			
GENDER			
RATEGRUP	MALE	FEMALE	TOTAL
ADMIN	59.2	40.8	100
AVIATION	93.3	6.7	100
COMBAT	98.8	1.1	100
MECHANICAL	94.9	5.1	100
SEAMANSHIP	96.4	3.6	100
SUPPORT	77.5	22.5	100
TECHNICAL	75.0	25.0	100

Source: Derived from data obtained from Bureau of Personnel

increase by one category (say, from category IIIB to IIIA) or by 10 percentage points, the take rate would increase by 1 percentage point. The cross-tabulation of AFQT by RATEGRUP, discussed earlier presents a much more detailed analysis of the effect of AFQT on the separation decision.

The minority variables are all statistically significant at the 99% confidence level. The signs of the coefficients are negative as expected, indicating that minorities are less likely than Caucasians to voluntarily separate. This supports previous research which suggests that minorities are more likely to stay in the military than whites because of perceived lower civilian job opportunities [Ref. 15:p. 63]. The minority variables have some of the largest effects on the probability of accepting the bonus. For example, both African Americans and Asians are 7 percent less likely to accept, while Hispanics are 3 percent less likely.

The MARRIED and MILSPOUS variables are both statistically significant at the 99% confidence level. The coefficient of the MARRIED variable is negative as expected, indicating that married service members are less likely than single sailors to voluntarily separate. The coefficient of the MILSPOUS variable is positive as expected, indicating that service members who are married to other military members are more likely to voluntarily separate.

The CHILDREN variable is statistically significant at the 99% confidence level. The sign of the coefficient is positive, which is not as expected, indicating that the more children you have, the more likely you are to voluntarily separate. This may

TABLE 12

OCCUPATIONAL GROUP BY MENTCAT

a. Percent Distribution Eligible

	MENTCAT					
RATEGRUP	I	II	IIIA	IIIB	IV	TOTAL
ADMIN	2.3	27.5	31.6	28.3	10.4	100
AVIATION	5.4	38.8	25.0	24.7	6.1	100
COMBAT	8.5	44.0	20.5	23.8	5.2	100
MECHANICAL	1.2	37.3	24.2	19.5	9.3	100
SEAMANSHIP	1.3	18.2	37.2	23.9	19.5	100
SUPPORT	1.9	20.8	37.5	27.2	12.6	100
TECHNICAL	8.5	44.9	19.1	22.1	5.5	100

b. Percent Distribution Takers

	MENTCAT					
RATEGRUP	I	II	IIIA	IIIB	IV	TOTAL
ADMIN	2.6	35.7	26.0	29.6	6.2	100
AVIATION	8.0	47.5	15.6	23.4	5.4	100
COMBAT	7.0	45.6	20.9	21.9	4.6	100
MECHANICAL	7.0	36.7	26.3	20.6	9.3	100
SEAMANSHIP	1.2	20.0	32.7	30.3	15.8	100
SUPPORT	2.3	25.1	37.9	25.1	9.7	100
TECHNICAL	1.2	49.0	17.4	20.9	3.9	100

c. Percent Distribution VSI Takers

	MENTCAT					
RATEGRUP	I	II	IIIA	IIIB	IV	TOTAL
ADMIN	6.1	35.7	25.5	29.6	3.1	100
AVIATION	9.5	53.3	14.3	15.2	7.6	100
COMBAT	14.9	42.5	23.0	19.1	3.5	100
MECHANICAL	7.7	38.5	21.8	28.6	6.4	100
SEAMANSHIP	1	21.4	28.6	28.6	20.9	100
SUPPORT	3.4	29.2	42.7	19.1	5.6	100
TECHNICAL	16.4	51.9	15.4	15.4	1.0	100

Source: Derived from data obtained from Bureau of Personnel

TABLE 13

LOGIT REGRESSION RESULTS ON ACCEPT/
NOT ACCEPT MODEL

VARIABLE	LOS-COEF	WAID X^2	Pr > X^2	PROB/DX[a]
INTERCEPT	0.147	--	--	--
AFQT (c)	0.005	21.818	.0001*	0.001
AFAMER	-0.059	194.220	.0001*	-0.071
ASIAN	-0.913	59.073	.0001*	-0.069
ALLOTHER	-0.220	8.894	.0029*	-0.024
HISPANIC	-0.335	12.327	.0004*	-0.035
MARRIED	-0.163	11.941	.0005*	-0.017
MILSPOUS	0.239	9.241	.0029*	0.027
CHILDREN (c)	0.080	26.918	.0001*	0.008
MALE	-0.323	28.887	.0001*	-0.038
CONTRACT (c)	-0.248	391.126	.0001*	-0.024
PAYGRDE6	-0.675	258.919	.0001*	-0.075
LASTPRMO (c)	0.001	0.004	.9501	-0.006
LOS (c)	-0.036	11.114	.0009*	-0.003
NONGRAD	0.420	15.157	.0001*	0.008
HSGRAD	0.106	1.120	.2899	0.009
UNRATE (c)	-0.059	30.506	.0001*	-0.006
TECRATNG	-0.196	9.477	.0021*	-0.023
MECRATNG	-0.175	7.244	.0071*	-0.024
ADMRATNG	-0.263	15.831	.0001*	-0.028
AVRATING	-0.396	36.867	.0001*	-0.043
SUPRATNG	-0.475	46.762	.0001*	-0.049
SMNRATNG	-0.217	7.867	.0050*	-0.023

Model Chi-Square = 1311.859 with 22 DF (p = 0.0001); n=3876

* Significant at the 99% confidence level

NOTE: [a] Computed from ordinary least squares

Source: Derived from data obtained from Bureau of Personnel

68

support family separation as an indicator of the decision to stay or leave. Also it counters the family responsibility argument used for the MARRIED variable because, with more family responsibility, i.e., more children, one would be less likely to voluntarily separate.

The variable MALE is significant at the 99% confidence level. The sign of the coefficient is negative as expected, indicating that male service members are less likely to voluntarily separate. The finding that female service members are more likely to separate may support the economic theory about labor force participation rates among women. That is, this may be an example of a career interruption that is commonly observed among civilian labor force participants.

The variable CONTRACT is significant at the 99% confidence level. The sign of the coefficient is negative, indicating that as years left on the current enlistment contract increase, service members are less likely to accept voluntary separation. The CONTRACT variable is one of the most significant variables in the model, with a Wald chi-square of 391.126.

The variable LASTPRMO is statistically insignificant. The sign of the coefficient of LASTPRMO is negative, which indicates that the longer it has been since the service member's last promotion, the less likely he/she is to accept voluntary separation. If promotion history is an indicator of performance, the poorer performers are opting to stay in the Navy. This relationship also could be an indication of perception of marketability in the civilian work place.

The LOS variable is significant at the 99% confidence level. The sign of the coefficient is negative as expected, indicating that the greater the length of service, the less likely the service members are to accept voluntary separation. This result supports economic theory that suggests that more time one spends in an organization, the more organization-specific skills they acquire and the less likely they are to leave.

The variable PAYGRADE is significant at the 99% confidence level. The sign of the coefficient is negative as expected, indicating that those in the higher paygrade (E6) are less likely to accept voluntary separation. The paygrade variable is one of the most significant variables in the model, with a Wald chi-square of 258.919.

The HSGRAD, NONGRAD and COLLEGE variables were constructed from the EDCERT variable in the original data set as dichotomous variables to test the theory that more education leads to better civilian job opportunities and as a result, would increase the probability that the service member would voluntarily separate. COLLEGE was used as the comparison group. The HSGRAD and NONGRAD variables are highly correlated, .8637, showing a strong linear association.

Although the HSGRAD variable is not statistically significant, the sign of the coefficient is positive. This supports the theory that more education makes an individual more marketable and therefore more likely to voluntarily separate. The NONGRAD variable is significant at the 99% confidence level. The sign of the coefficient of the NONGRAD variable is positive, which goes against expectations. It was anticipated that military members who are non-high school graduates would

70

be less likely to voluntarily separate because of perceived limited opportunities in the civilian job market.

The UNRATE variable is significant at the 99% confidence level. The sign of the coefficient is negative as expected, indicating that as the unemployment rate increases in the service member's home of record, he or she is less likely to voluntarily separate. The assumption was made that, if they separate, service members would return to their home of record. It is also reasonable to interpret the UNRATE variable generically, in that as the unemployment rate across the nation increases, the service member is less likely to voluntarily separate.

The six dummy variables for the occupational groupings are all significant at the 99% confidence level, and all of their coefficients have negative signs. This indicates that any rating group other than the combat rating group is less likely to accept voluntary separation.

The classification table, Table 14, will be used to assess the goodness-of-fit of the ACCEPT model. The ACCEPT model correctly classified 60.5 percent of all of the cases. The sensitivity of the model is the proportion of EVENT responses that were predicted to be EVENT; the specificity of the model is the proportion of NO EVENT responses that were predicted to be NO EVENT. The false positive and false negative rates measure the proportion of predicted EVENT/NO EVENT responses that were observed as NO EVENT/EVENT. [Ref. 26:pp. 1091-92] In other words, it measures the incorrectness of the prediction. The sensitivity of the ACCEPT model is 64.4 percent; the specificity, 59.9 percent. False positives were

71

81.8 percent; false negatives, 7.6 percent. This indicates that the model predicts better when an individual chooses not to separate.

Another goodness-of-fit measure used is the log likelihood ratio test. The likelihood ratio statistic is computed as equal to -2 Log L_0 - L_1. The computed Chi-square tests the hypothesis that all coefficients except the intercept are equal to zero. If the Chi-square is large, reject the null hypothesis. The Chi-square for the ACCEPT model is 1311.859 with 22 DF (p = 0.0001).

D. MULTIVARIATE MODEL OF CHOICE OF SEPARATION PAYMENT DECISION

The purpose of the CHOICE model is to identify the factors affecting the choice of the specific incentive program by enlisted members who have chosen to voluntarily separate. The CHOICE model contains 3,876 observations, representing service members who applied and were approved for voluntary separation from one of the four FY92 offerings (243 observations were lost due to missing variables in the original VSI/SSB data set). The dependent variable represents a binary choice, VSI or SSB. It was modeled as a function of basis demographic, educational and economic, length of service, paygrade and rating variables. Table 15 lists the OLS coefficients of each variable and the LOGIT coefficient, along with the Wald Chi-square and significance level. The effects of each explanatory variable on the probability of selecting VSI are discussed below.

The AFQT variable is not statistically significant, indicating that AFQT has no effect on the choice between programs. The AFAMER variable is statistically

72

significant at the 99% confidence level. The sign of the coefficient is negative as expected, indicating that African Americans are less likely to choose VSI over SSB than Caucasians. The AFAMER variable is the second most significant variable in the model, with a Wald chi-square of 10.259. The other ethnic variables are statistically insignificant. The signs of the coefficients of the ASIAN and HISPANIC variables are negative, as is AFAMER; however, the coefficient of the variable ALLOTHER is positive, indicating "other" ethnic service members are more likely to choose VSI over SSB.

The MARRIED and MILSPOUS variables are both statistically significant at the 95% confidence level. The coefficient of the MARRIED variable indicates that married service members are less likely than single members to choose VSI over SSB. The coefficient of the MILSPOUS variable indicates that service members who are married to other military members are more likely to choose the VSI option. The CHILDREN variable is statistically significant at the 90% confidence level. The sign indicates that the more children you have, the less likely you are to choose VSI over SSB.

The choice of VSI versus SSB could be driven by differences in the benefits packages associated with the two programs. Married service members and those with children tend to select the SSB program, which has the most benefits to assist in the transition to a new job and lifestyle. These include benefits important to service members with family responsibilities such as two years of exchange and commissary privileges, both CHAMPUS and in-house health care for up to 120 days after

73

TABLE 14

TABLE CLASSIFICATION TABLE LOGIT/ACCEPT MODEL

	PREDICTED		
	EVENT	NO EVENT	TTL
E V E N T	2498 SENSITIVITY 64.4	1,378	3876
N O E V E N T	11,218	16,778 SPECIFICITY 59.9	27996
T T L	13,716	18,156	31872

False pos. - 81.8
False neg. - 7.6
Corrrect   - 60.5

separation, and extended use of military housing of up to 180 days. Another benefit useful to service members with family responsibilities is the priority National Guard and Reserve affiliation, which could mean additional or interim income after separation.

That service members with military spouses tend to choose the VSI program could further support the hypothesis that differences in the benefits package was a major factor influencing the choice decision. Service members with military spouses do not have to rely on transition benefits from the military since, as a military dependent, they will remain eligible for all of the benefits that are being offered under the SSB program. The VSI program pays the highest monetary separation bonus. However, the fact that 84.8 percent of the service members who chose to voluntarily separate chose the SSB program indicates that the non-monetary transition benefit package was an important factor.

The variable MALE is significant at the 95% confidence level. The sign of the coefficient indicates that male service members are less likely to choose VSI over SSB. The LOS variable is statistically significant and indicates that the greater the length of service, the more likely the service member is to choose VSI.

The variable PAYGRADE is not statistically significant. The NONGRAD variable is significant at the 90% confidence level. The negative sign of the coefficient of the NONGRAD variable indicates that non-high school graduates are less likely to choose VSI over SSB.

TABLE 15

LOGIT REGRESSION RESULTS ON CHOICE
BETWEEN VSI/SSB MODEL

Variable	Logit Coef	Wald X^2	$Pr > X^2$	$\Delta Prob/\Delta X$[a]
INTERCEPT	-5.085	--	--	--
AFQT	0.004	1.961	.9814	0.000
AFAMER	-0.536	10.259	.0014	-0.055
ASIAN	-0.111	0.112	.7375	-0.014
ALLOTHER	0.143	0.000	.4114	0.019
HISPANIC	-0.006	0.000	.9814	-0.008
MALE	-0.337	4.977	.0257**	-0.041
MARRIED	-0.279	5.580	.0182**	-0.036
MILSPOUS	0.457	5.650	.0175**	0.001
CHILDREN	-0.073	3.242	.0718*	-0.008
NONGRAD	-0.225	3.208	.0733*	-0.027
LOS	0.297	153.088	.0001**	0.038
PAYGRADE	0.011	0.000	.8042	0.001
TECRATNG	-0.055	0.109	.7418	-0.055
AVRATING	0.083	0.253	.6151	0.012
ADMRATNG	-0.261	2.245	.1341	-0.034
SUPRATNG	0.011	0.000	.9814	0.002
SMNRATNG	-0.661	7.760	.0053**	-0.064
MECRATNG	-0.166	0.907	.3408	-0.020

Model CHI-SQUARE = 236.494 with 18 DF (p = 0.0001); n=589

*   Significant at the 90% confidence level
** Significant at the 95% confidence level

NOTE: [a] Computation from Ordinary Least Squares

Source: Derived from data obtained from Bureau of Personnel

76

The dummy variables for the six occupational groupings are statistically insignificant except for SMNRATNG, which is significant at the 95% confidence level. The TECRATNG, ADMRATNG, SMNRATNG and MECRATNG coefficients are negative, indicating that service members in these groups are less likely to choose VSI over SSB. The AVRATING and SUPRATNG coefficients are positive, indicating that service members in these groups are more likely to choose VSI over SSB.

The classification table, Table 16, will be used to assess the goodness-of-fit of the CHOICE model. The model correctly classified 65.7 percent of the cases. The sensitivity of the CHOICE model is 60.1 percent; the specificity, 66.7 percent. False positives were 75.6 percent; false negatives, 9.7 percent. This indicates that the model more correctly predicts when an individual chooses the SSB option. The Chi-square for the CHOICE model is 236.494 with 18 DF (p = 0.0001).

E.   ANALYSIS OF PROBABILITIES FROM LOGIT MODELS USING "NOTIONAL PERSON" APPROACH

1.   Overall probabilities

The base case, i.e., notional person, for the ACCEPT model is a white male, married to a civilian, with the average number of children (2); his home of record has the average unemployment rate of 7.3; he is a high school graduate with an average AFQT score of 60; he is an E6 in the combat ratings group with the average number of years left on his current enlistment contract (2), average length of service (13), and the average number of years since his last promotion (5).

TABLE 16

TABLE CLASSIFICATION TABLE LOGIT/CHOICE MODEL

	PREDICTED		
	EVENT	NO EVENT	TTL
EVENT	354 SENSITIVITY 60.1	235	589
NO EVENT	1095	2192 SPECIFICITY 66.7	3287
TTL	1449	2427	3876

False positive 75.6
False negative 9.7
Correct   65.7

Source: Derived from data obtained from Bureau of Personnel

The probability of accepting voluntary separation for this base case person is 13.5 percent; the actual percentage of "takers" in the population is 12.2 percent. By changing each independent variable by one unit, the change in the accept probabilities can be computed. That is, we can change one explanatory variable by one unit while holding the others fixed at their mean values. The results of this calculation are presented in Table 17.

The largest differences from the base case are for African American males, who are 6.7 percent less likely to accept voluntary separation. Also, Asian

TABLE 17

PREDICTED TAKE RATE AND PERCENTAGE CHANGE FOR
ACCEPT AND CHOICE MODELS (NOTIONAL PERSON APPROACH)

	Prob. of Accepting	%Δ	Prob. of Taking VSI	%Δ
Base Case	13.5		15.0	
(MALE) AFAMER	6.8	-6.7	9.4	-5.6
HISPANIC	10.0	-3.5	14.1	-0.9
ASIAN	8.4	-7.6	13.0	-1.3
OTHER	11.1	-2.4	18.9	+1.9
(FEMALE) CAUC	17.7	+4.2	19.8	+1.9
AFAMER	6.8	-4.3	12.4	-2.3
HISPANIC	13.3	-0.2	19.8	+4.2
ASIAN	7.9	-5.6	18.2	+4.2
OTHER	10.7	+4.2	22.2	+7.2
3 CHILDREN	14.1	+0.9	12.4	-2.6
SINGLE	15.5	+2.0	21.8	+6.8
MILSPOUSE	16.5	+4.2	18.9	+3.9
PAYGRADE E5	23.4	+9.9	14.7	-2.3
LOS 12	13.9	+0.4	11.6	-3.0
LOS 14	13.1	-0.4	18.2	+4.2
NONGRAD	17.6	+4.1	14.1	-0.9
ADMRATNG	10.7	-2.8	16.1	+1.1
AVRATING	9.5	-4.0	12.0	-3.0
MECRATNG	10.0	-4.0	13.0	-2.0
SMNRATNG	11.1	-2.4	8.4	-6.6
SUPRATNG	8.8	-4.7	15.2	+1.1
TECRATNG	11.3	-2.2	14.3	-0.7

Source: Derived from data obtained from Bureau of Personnel

males and females are 7.6 and 5.6 percent, respectively, less likely to accept. The change having the largest effect is from E6 to E5, with E5 petty officers being 9.9 percent more likely to voluntarily separate than E6s.

Caucasian females are around four percent more likely and African American females are around four percent less likely than Caucasian males to separate. Non-high school graduates are four percent more likely to separate than high school graduates. In the rate groupings all are less likely to separate than the combat ratings, with support and aviation having the largest percentage differences.

The base case, i.e., notional person, for the CHOICE model is a white male, married to a civilian, with the average number of children (2); he is a high school graduate with an average AFQT score (60), and an E6 in the combat ratings comparison group.

The largest differences from the base case in the CHOICE model are for females in the "other" ethnic category, who are 7.2 percent more likely to take VSI over the base case. African American males are 5.6 percent less likely to choose VSI than white males. Single service members are 6.8 percent more likely to take VSI than married members. The only rating group that showed a significant difference from the base case is the seamanship group, which was 6.6 percent less likely to choose VSI.

Caucasian and Hispanic females are four percent more likely than Caucasian males to choose VSI. Service members with higher lengths of service are

more likely to choose VSI, and married service members who are married to other military members are also more likely to choose VSI.

2. Probabilities by paygrade, LOS and rating group

The following analysis is based on the notional person definitions listed above for both of the models. In this analysis of differences between rating groups, the paygrade was held constant for both paygrades while changing the length of service from 10 to 17 years, the window of eligibility outlined by OPNAV (see Appendix). As before, the base case length of service is 13 years.

Table 18 presents the predicted "take" rates for paygrade E5 by rating group and LOS. The administrative rating group has the highest percentage take rate for the base case LOS. It is 10.2 percentage points above the actual take rate. The most significant difference in predicted take rate is the combat rating group with 10 years LOS, (27.6 percent, 15.4 percent above the actual take rate). The next most significant is the technical rating group with 10 years LOS.

Table 19 presents the predicted "take" rates for paygrade E6 by rating group and LOS. The combat rating group has the highest percentage take rate for the base case LOS (13.7 percent). The base case percentage take rates that are above the actual take rates are for the combat and technical rating groups only; all other rating group take rates fall below.

Table 20 presents the predicted VSI program "take" rates for paygrade E5 by rating group and LOS. The support rating group has the highest percentage VSI take rate for the base case LOS (16.8 percent). The percentage take rates are all

below the actual take rates except for the support and combat rating groups. Overall, the VSI take rate percentages for E5s are below the actual take rate, until you reach fifteen years of service, for this base case.

Table 21 presents the predicted VSI program "take" rates for paygrade E6 by rating group and LOS. The aviation rating group has the highest percentage take rate for the base case LOS, (16.8 percent). For this base case person, the rating group with the highest VSI take rate is the aviation rating group with 17 years of service. The lowest VSI take rate is for the seamanship rating group, which is lower than the actual take rate up to LOS 17, where the take rate is 16.5 percent.

TABLE 18

PREDICTED TAKE RATE FOR PAYGRADE E5
BY RATING GROUP AND LENGTH OF SERVICE

	LOS							
	10	11	12	13[a]	14	15	16	17
RATEGRUP								
ADMIN	20.5	21.1	21.8	22.4	23.8	23.8	24.4	25.1
AVIATION	18.8	17.2	15.6	14.2	12.9	11.7	10.6	9.5
COMBAT	27.6	25.3	23.1	21.0	19.1	17.4	15.7	14.2
MECHANICAL	18.0	19.3	19.6	18.9	20.8	20.5	20.8	21.1
SEAMANSHP	18.0	18.2	18.3	18.5	18.6	18.8	18.9	19.1
SUPPORT	16.1	15.9	15.8	15.7	15.5	15.4	15.3	15.2
TECHNICAL	26.5	24.5	22.7	21.0	19.4	17.9	16.4	15.1

NOTE: [a] LOS 13 is Base Case

Source: Derived from data obtained from Bureau of Personnel

TABLE 19

**PREDICTED TAKE RATE FOR PAYGRADE E6
BY RATING GROUP AND LENGTH OF SERVICE**

	LOS							
	10	11	12	13[a]	14	15	16	17
RATEGRUP								
ADMIN	8.6	8.9	9.2	9.5	9.9	10.2	10.6	10.9
AVIATION	13.1	11.8	10.7	9.7	8.7	7.9	7.1	6.4
COMBAT	13.5	16.7	15.1	13.7	12.3	11.1	10.0	9.0
MECHANICAL	10.2	19.4	10.8	10.8	10.9	11.1	11.3	11.5
SEAMANSHIP	11.7	11.9	11.9	12.5	12.1	12.2	18.3	12.4
SUPPORT	9.1	9.9	8.9	8.8	8.9	8.7	8.6	8.5
TECHNICAL	16.4	15.1	13.9	12.7	11.6	10.6	9.7	8.9

NOTE: [a] LOS 13 is Base Case

Source: Derived from data obtained from Bureau of Personnel

TABLE 20

**PREDICTED TAKE RATE FOR VSI FOR PAYGRADE E5
BY RATING GROUP AND LENGTH OF SERVICE**

	LOS							
	10	11	12	13[a]	14	15	16	17
RATEGRUP								
ADMRATNG	4.9	6.4	8.3	10.6	13.5	17.1	21.4	26.4
AVRATING	6.2	8.8	11.2	14.8	19.4	25.0	31.5	38.8
COMRATNG	8.0	10.8	13.0	16.3	20.3	25.0	30.4	36.3
MECRATNG	4.9	8.8	9.3	12.5	16.8	22.0	28.4	35.8
SMNRATNG	4.9	6.2	7.8	9.7	12.1	14.9	18.3	22.2
SUPRATNG	8.7	10.9	13.6	16.8	20.7	25.1	30.2	35.8
TECRATNG	3.8	5.4	7.6	10.6	14.6	19.8	26.3	33.9

NOTE: [a] LOS 13 is Base Case

Source: Derived from data obtained from Bureau of Personnel

TABLE 21

PREDICTED TAKE RATE FOR VSI FOR PAYGRADE E6
BY RATING GROUP AND LENGTH OF SERVICE

	LOS							
	10	11	12	13[a]	14	15	16	17
RATEGRUP								
ADMIN	6.2	8.0	10.3	13.1	16.8	20.8	25.7	31.3
AVIATION	7.1	9.6	12.7	16.8	21.8	27.8	34.7	42.4
COMBAT	8.2	10.5	13.3	16.7	20.8	25.6	31.0	37.0
MECHANICAL	4.2	5.8	7.9	10.8	10.5	19.3	25.1	32.0
SEAMANSHIP	3.5	4.9	5.8	6.9	8.7	10.8	13.4	16.5
SUPPORT	6.7	8.0	10.6	13.2	16.4	20.2	24.6	29.6
TECHNICAL	4.3	6.2	8.6	12.0	16.5	22.2	29.1	37.3

NOTE: [a] LOS 13 is Base Case

Source: Derived from data obtained from Bureau of Personnel

V. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

This thesis investigated the factors that influence the decision to voluntarily separate under one of the two monetary incentive programs, and the choice of which incentive program to accept. Success in meeting the challenges of the current personnel reduction depends upon the effective implementation of downsizing strategies. By making effective use of the voluntary separation incentive programs, adverse effects of the drawdown on service members and the future force can be reduced, if not eliminated.

The purpose of the statistical analysis in this thesis was to develop a method of estimating the acceptance rate for voluntary separation and for a specific incentive program, in this case VSI. The thesis focused specifically on the results of FY92 VSI/SSB offerings made to enlisted members of the Navy. Results from previous research on the Selective Reenlistment Bonus (SRB) were used as the basis for forming hypotheses of the effect of monetary separation bonuses on separation behavior.

The multivariate logit model was explained and used to specify empirical regression models of the separation decision. The categories of specific variables used in the estimating equation included basic demographic factors, Navy experience and other background factors, and eligibility requirements. Multivariate logit

regression models were estimated to obtain the direction and magnitude of the effect of each explanatory variable on the decision to accept/reject a voluntary separation incentive bonus when it is offered. The models estimated the partial effect of the separation bonus program on the probability of acceptance among service members who are eligible, holding constant other factors.

The analysis performed in this thesis was primarily concerned with determining which factors were statistically significantly influences on the individual's decision. While the signs of the coefficients of most variables were consistent with initial expectations, there were significant differences in the magnitude and level of significance between the model explaining the separation decision and the model explaining the choice of program. This suggests that the factors that influence the decision of whether or not to voluntarily separate are different from those that influence the choice of type of payment, a lump sum versus an annuity.

Factors that the Navy can control will be the most important in the successful implementation of future rounds of offerings. These factors are the length of service, paygrade and rating of the service member. Length of service is a statistically significant variable in both the separation and choice decision models. Results indicate that the greater the length of service, the less likely service members are to accept voluntary separation. However, once the separation decision has been made, service members with more time in are more likely to choose VSI.

Paygrade is statistically significant in the decision to separate model; however, it is not significant in the choice decision. In the decision to voluntarily separate,

paygrade is one of the most significant indicators of behavior. In particular, those in the higher paygrades were shown to be less likely to voluntarily separate.

The rating dummy variables were all significant in the decision to voluntarily separate model. However, except for the seamanship ratings, they are statistically insignificant in the choice of program. Results indicate that compared to the combat rating group all other rating groups are less likely to choose to voluntarily separate. This finding does not support the expectation of combat rating groups being the group with the most organization-specific skills and therefore the least likely to choose to voluntarily separate.

Results of cross-tabulations indicated that the highest take rates, not suprisingly fell within the same rating groups that had the highest percentage of personnel who were offered voluntary separation. With respect to the choice decision, the highest VSI take rates were in the LOS 14-15 cell for all but the seamanship rating group. However, the VSI take rate in the LOS 16-17 cell dropped off dramatically for all rating groups.

This lower take rate for VSI in the higher LOS cell may be correlated with the different non-pecuniary benefits packages that were being offered with the programs in the FY92 rounds. (See Appendix) The SSB package offered non-pecuniary benefits that are similar in type and number to those offered at retirement and may have been perceived as worth more than the additional monetary compensation paid by the VSI program.

The benefits packages offered with the two programs also appear to have impacted the effect of various demographic characteristics on the program choice decision. Married service members and those with children tended to select the SSB program, which offered the most extensive benefits, to assist in the transition to a new civilian job and lifestyle. These include benefits important to service members with family responsibilities such as exchange and commissary privileges, health care, and use of military housing. Another benefit useful to service members with family responsibilities is the priority for National Guard and Reserve affiliation, which could mean additional or interim income after separation. Service members who do not have to rely on transition benefits because they are married to military members and will remain eligible for dependent benefits, and single members with no family responsibilities, tended to choose the VSI program.

Percentages of high school graduates in the "taker" population for all rating groups are less than in the overall eligible population, indicating that the Navy is not losing a disproportionate share of high school graduates. The percentages of non-high school graduates in the "taker" population for all rating groups exceed the percentages in the overall eligible population, indicating that the Navy is disproportionately separating non-high school graduates.

The variable for time left on current enlistment contract is one of the most significant variables in the decision to voluntarily separate. As years left on the current enlistment contract increase, service members are less likely to accept voluntary separation. This result indicates that service members who have time to

wait for a better offer, or to wait and see what an uncertain future might bring, do so.

One aspect of the drawdown that is of concern to manpower planners is possible side-effects of the downsizing strategies on retention. The normal response when offered a monetary incentive to separate, in a RIF environment, is to accept the separation bonus before being laid off. During FY92 the Navy put forth great effort to assure it's personnel that RIFs would not be used to meet personnel reductions, removing an important motivation to accepting voluntary separation. The Navy experienced increased retention during the FY92 downsizing. This could be a combination of the reinforcement of job security by Navy officials and perceptions of current civilian employment opportunities.

B.   RECOMMENDATIONS FOR FUTURE RESEARCH

In each of the four successive FY92 rounds (Phases I - IV) the length of service requirement was progressively widened. In this analysis, however, the four phases could not be analyzed separately to determine the effect of length of service on the decision to separate. Thus, the data represents an aggregation over all four rounds of FY92 and mirror the average behavior for the year. It is believed that this average yields representative results in terms of the direction and magnitude of effects that separate analyses of the individual phases would have yielded. The phase fields are available in the original VSI/SSB data set obtained from the ADP section of BUPERS (PERS-10). Further analysis of the data set used in this thesis by phase

could confirm and reinforce the findings of this study with regard to the effect of length of service on the dependent variable.

A study of FY93 offerings is also needed to assess the effect of the non-pecuniary benefits packages on the choice decision. In each of the four rounds of FY92, the benefits packages were different for the two programs. In the FY93 Defense Authorization Act, the benefits package for VSI was changed to include those benefits previously offered only with the SSB program. Thus, the benefits packages attached to both programs were equalized. If the data for the FY93 rounds were obtained and put into the same format as the data set analyzed in this thesis, comparison of the results under the different non-pecuniary benefits packages could be made; and confirmation of the inferences drawn here with respect to the program choice could be made.

A study using survey data could shed more light on the factors behind the decision of service members to voluntarily separate. Many of the influences on a retention/separation decision are non-quantifiable, personal taste choice factors. For example, survey data could help determine the general satisfaction level of service members with the military, a factor which has been shown by previous research to have an effect on the retention decision [Ref. 15].

One area that needs attention is a review of the eligible ratings that were targeted by enlisted manpower planners. Rating eligibility was restricted to regular active duty enlisted personnel. Included in the data set obtained from BUPERS are 56 service members in ratings that have enlisted community codes of S and T, which

are Training and Administration of Reserves (TAR) communities. Of the 56 eligible members that were coded as TAR's, 48 were approved for separation under VSI or SSB, 9 S-community, 39 T-community. These individuals may have been miscoded. By cross-referencing the EMCCODE variable with social security number, these individuals can be separated from the original data set and a check of eligibility can be made.

Finally, this thesis could not show conclusively that the historical overall separation rate would not have increased in the absence of the voluntary separation incentive programs. Because the Navy was under the least serious threat of RIF of the four services, it is a reasonable assumption that historical continuation/separation behavior would have prevailed, even in the absence of the monetary incentive separation programs. If this assumption is correct, the take rates found in this analysis will show the net effect of monetary separation incentive programs on separation behavior, and not a related effect of the reduction-in-force environment.

The VSI and SSB programs provide the ability to specifically target overmanned ratings and ratings that are being phased out because of the changing missions of the Navy, and to target specific lengths of service in order to provide those who remain in the shrinking force with continued opportunity for promotion. Because of these applications, future use of voluntary separation incentive programs will be useful. Considering the possibility that all service members interested in a voluntary separation bonus program would have accepted and separated in the first rounds, the question of whether or not the VSI/SSB can be used again successfully is an

important one. With the change in domestic political parties in power, the threat of RIF and perception of job security remain uncertain. The threat of RIF is a strong motivation. Personnel will be assessing their options and opportunities for future service until final decisions on the size, composition and mission of the military have been made. The constantly changing international environment and current domestic political climate will have major impacts on such issues as the "Base Force" and future mission definition for the U.S. military. Continuing research will be required to assess the fairness and effectiveness of actions taken, and implications for the future force, when further reductions are required.

APPENDIX

LISTING OF REQUIREMENTS FOR ELIGIBILITY BY LOS, RATING AND PAYGRADE

10JAN92 - ALNAV announcing FY92 participation in VSI/SSB programs

Benefit programs were originally designed as indicated below. In the FY93 Defense Authorization Act the benefit packages were redesigned to contain the same benefits across all separation programs. The addition of benefits was also made retroactive so that all personnel who opted to voluntarily separate under VSI recieved the same benefits as those who chose SSB.

TRANSITION ASSISTANCE BENEFIT PACKAGES

	VSI	SSB	INVOL SEP
Pre-Separation Counseling	X	X	X
Employment Assistance	X	X	X
Relocation Assistance (Overseas)	X	X	X
Transition Health Care (CHAMPUS and In-house) Up to 120 days after SEP	Insurance only **(X)**	X	X
Two-Year Commisary and Exchange Priviledges	**(X)**	X	X
Extended Use of DoDDS Schools (Overseas only and if DEPNS have completed 11th grade at SEP)	**(X)**	X	X
Ten Days Permissive TDY and Excess Leave for Relocation Transition	**(X)**	X	X
Priority Reserve and National Guard Affiliation Within One Year Of SEP	**(X)**	X	X
Extended Use of Military Housing (Up To 180 Days, with rental charge)	**(X)**	**(X)**	X

Montgomery GI Bill   (X)   (X)   X
Enrollment Opportunity

(X) Benefits added in FY93 Authorization Act.

13 JAN 92   1st Round announced
* 1 FEB - 15 FEB 92 *

RATING	YOS	YOS	NOTES
ABE1	14	16	
AE1	15	16	
AE2	15	16	
AK2	15	16	NEC 2824 NOT ELIGIBLE
AMS2	15	16	
AO2	13	16	
AT2	15	16	NEC 6628, 6650, 6689 NOT ELIGIBLE
AW1	14	16	NEC 7821 ONLY
BM1	14	16	NEC 0161, 0167, 0215, 0216 NOT ELGBLE
BM2	12	16	NEC 0161, 0167, 0215, 0216 NOT ELGBLE
DC1	15	16	
DC2	13	16	
DK1	15	16	
DK2	13	16	
DM1	14	16	
DM2	13	16	
DP1	14	16	
DP2	12	16	
DS1	14	16	
DS2	13	16	
DT1	15	16	NEC 0000, 8707 ONLY
DT2	14	16	NEC 0000, 8707 ONLY
EM(SW)1	15	16	NEC 4613-16, 4621, 4631-32, 4666, 4668-69, 4671-73, 4707 NOT ELIGIBLE
EM(SW)2	12	16	NEC 4613-16, 4621, 4631-32, 4666, 4668-69, 4671-73, 4707 NOT ELIGIBLE
ET(SSN)1	15	16	
ET(SWS)1	15	16	
ET(SWS)2	12	16	
FTB1	15	16	
FTB2	12	16	
GMG1	15	16	NEC 0878, 0879 NOT ELIGIBLE
GMG2	11	16	NEC 0878, 0879 NOT ELIGIBLE
GMM1	15	16	NEC 0981 NOT ELIGIBLE
GMM2	10	16	NEC 0981 NOT ELIGIBLE
HM1	15	16	NEC 0000, 8404 ONLY
HM2	13	16	NEC 0000, 8404 ONLY
IC(SS)1	15	16	

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IC(SS)2     15     16
IM1         15     16     NEC 1801 NOT ELIGIBLE
IM2         13     16     NEC 1801, 1820-21 NOT ELIGIBLE
JO1         15     16
JO2         13     16
LI1         15     16
LI2         13     16
MM(SS)1     15     16
MM(SS)2     15     16
MN1         14     16
MN2         12     16
MS2         14     16
NC1         15     16
OM1         15     16
OM2         13     16     NEC  1801,   1820-21,   1918    NOT
ELIGIBLE
PC1         15     16
PH1         15     16
PH2         14     16
PN1         15     16
PN2         13     16
PR2         13     16
QM(SW)1     15     16     NEC  0161,   0167,   0215-16    NOT
ELIGIBLE
QM(SW)2     13     16     NEC  0161,   0167,   0215-16    NOT
ELIGIBLE
RM1         15     16     NEC  2313,   2318-19,   2346    NOT
ELIGIBLE
RM2         13     16     NEC  2313,   2318-19,   2346    NOT
ELIGIBLE
RP1         15     16
RP2         14     16
SH2         15     16
SK1         14     16     NEC 2824 NOT ELIGIBLE
SM1         15     16
SM2         13     16
STS1        14     16     NEC 0418, 0419 NOT ELIGIBLE
WT1         14     16
WT2         11     16
YN1         15     16
YN2         12     16
```

29 FEB 92 - NAVADMIN MSG announcing SECOND Phase - VSI/SSB
programs FY92

RATING	YOS	YOS	NOTES
ABE1	14	16	
AE1	14	16	
AE2	14	16	
AK2	13	16	NEC 2824 NOT ELIGIBLE
AMS2	13	16	
AO2	12	16	
AT2	11	16	NEC 6628, 6650, 6689 NOT ELIGIBLE
AT1	**12**	**16**	**NEC 6628, 6650, 6689 NOT ELIGIBLE**
AW1	14	16	NEC 7821 ONLY
AZ2	**14**	**16**	
BM1	**12**	16	NEC O161, 0167, 0215, 0216 NOT ELGBL
BM2	**11**	16	NEC O161, 0167, 0215, 0216 NOT ELGBL
DC1	15	16	
DC2	13	16	
DK1	**13**	16	
DK2	13	16	
DM1	**12**	16	
DM2	**12**	16	
DP1	**12**	16	
DP2	**11**	16	
DS1	**12**	16	
DS2	**11**	16	
DT1	15	16	NEC 0000, 8707 ONLY
DT2	14	16	NEC 0000, 8707 ONLY
EM(SW)1	**11**	16	NEC 4613-16, 4621, 4631-32, 4666, 4668-69, 4671-73, 4707 NOT ELIGIBLE
EM(SW)2	**11**	16	NEC 4613-16, 4621, 4631-32, 4666, 4668-69, 4671-73, 4707 NOT ELIGIBLE
ET(SS)1	**12**	**17**	
ET(SS)2	**14**	**17**	
ET(SWS)1	**12**	16	
ET(SWS)2	**11**	16	
EW2	**13**	**16**	
FC2	**13**	**16**	
FTB1	**12**	16	
FTB2	**11**	16	
GMG1	**13**	16	NEC 0878, 0879 NOT ELIGIBLE
GMG2	11	16	NEC 0878, 0879 NOT ELIGIBLE
GMM1	**13**	16	NEC 0981 NOT ELIGIBLE
GMM2	**11**	16	NEC 0981 NOT ELIGIBLE
HM1	15	16	NEC 0000, 8404 ONLY
HM2	13	16	NEC 0000, 8404 ONLY
IC(SS)1	**13**	16	
IC(SS)2	**12**	16	
IM1	**12**	16	NEC 1801, **1820-21** NOT ELIGIBLE

IM2	**11**	16	NEC 1801, 1820-21 NOT ELIGIBLE
JO1	**12**	16	
JO2	**11**	16	
LI1	**13**	16	
LI2	**12**	16	
MM(SS)1	**13**	16	
MM(SS)2	**12**	16	
MM(SW)1	**14**	**16**	
MM(SW)2	**14**	**16**	
MN1	**13**	16	
MN2	**11**	16	
MS2	**12**	16	
MS1	**14**	**16**	
MT1	**14**	**16**	
MT2	**12**	**16**	
NC1	**13**	16	
OM1	**12**	16	**NEC 1801, 1820-21, 1918 NOT ELIGIBLE**
OM2	**11**	16	NEC 1801, 1820-21, 1918 NOT ELIGIBLE
PC1	**12**	16	
PC2	**13**	**16**	
PH1	**12**	16	
PH2	**11**	16	
PN1	**12**	16	
PN2	**11**	16	
PR2	**11**	16	
QM(SW)1	15	16	NEC 0161, 0167, 0215-16 NOT ELIGIBLE
QM(SW)2	**12**	16	NEC 0161, 0167, 0215-16 NOT ELIGIBLE
RM1(SW)	**13**	16	
RM2(SW)	**11**	16	
RP1	**12**	16	
RP2	**11**	16	
SH2	**12**	**17**	
SH1	**13**	**17**	
SK1	14	16	NEC 2824 NOT ELIGIBLE
SM1	**13**	16	
SM2	**11**	16	
STS1	**12**	16	NEC 0418, 0419 NOT ELIGIBLE
STS2	**12**	**16**	**NEC 0418, 0419 NOT ELIGIBLE**
WT1	11	**17**	
WT2	11	**17**	
YN1	**13**	16	
YN2	**11**	16	

10 APR 92 - NAVADMIN MSG announcing THIRD Phase - VSI/SSB programs FY92

RATING	YOS	YOS	NOTES
ABE1	10	17	
AE1	14	17	NOTE 1.
AE2	10	17	NOTE 1.
AK1	13	17	NEC 2824 NOT ELIGIBLE
AK2	10	17	NEC 2824 NOT ELIGIBLE
AMS1	12	17	NOTE 1.
AMS2	10	17	NOTE 1.
AO1	12	17	NOTE 1.
AO2	10	17	NOTE 1.
AT2	10	17	NOTE 1. NEC 6628, 6644, 6650, 6689 6695 NOT ELIGIBLE
AT1	10	17	NOTE 1. NEC 6628, 6633, 6650, 6689, 6695 NOT ELIGIBLE
AW1	12	17	NEC 7821 ONLY
AZ2	12	17	
BM1	10	17	NEC 0161, 0167, 0215, 0216 NOT ELGBLE
BM2	10	17	NEC 0161, 0167, 0215, 0216 NOT ELGBLE
DC1	14	17	
DC2	12	17	
DK1	12	17	
DK2	10	17	
DM1	10	17	
DM2	10	17	
DP1	10	17	
DP2	10	17	
DS1	10	17	
DS2	10	17	
DT1	14	17	NEC 8753 AND 8765 NOT ELIGIBLE
DT2	14	17	NEC 8753 AND 8765 NOT ELIGIBLE
EM1	11	17	SURFACE COMPONENT ONLY. NEC 4626, 4632, 4671-73, 4707 NOT ELIGIBLE
EM2	10	17	SURFACE COMPONENT ONLY. NEC 4626, 4632, 4671-73, 4707 NOT ELIGIBLE
ET(SS)1	10	17	
ET(SS)2	10	17	
ET(SWS)1	10	17	
ET(SWS)2	10	17	
EW2	10	17	
FC2	10	17	
FTB1	10	17	NEC 3307 NOT ELIGIBLE
FTB2	10	17	NEC 3307 NOT ELIGIBLE
GMG1	10	17	NEC 0878, 0879 NOT ELIGIBLE
GMG2	10	17	NEC 0878, 0879 NOT ELIGIBLE
GMM1	10	17	NEC 0981 NOT ELIGIBLE
GMM2	10	17	NEC 0981 NOT ELIGIBLE
HM1	13	17	NEC 0000, 8404 ONLY
HM2	12	17	NEC 0000, 8404 ONLY

IC(SS)1	**12**	**17**	
IC(SS)2	**10**	**17**	
IM1	**10**	**17**	NEC 1801, 1820-21 NOT ELIGIBLE
IM2	**10**	**17**	NEC 1801, 1820-21 NOT ELIGIBLE
JO1	**10**	**17**	
JO2	**10**	**17**	
LI1	**10**	**17**	
LI2	**10**	**17**	
MM(SS)1	**12**	**17**	
MM(SS)2	**10**	**17**	
MM(SW)1	**10**	**17**	
MM(SW)2	**10**	**17**	
MN1	**12**	**17**	
MN2	11	**17**	
MS2	**10**	**17**	**SURFACE COMPONENT ONLY**
MS1	**12**	**17**	**SURFACE COMPONENT ONLY**
MT1	**10**	**17**	**NEC 3317, 3319 NOT ELIGIBLE**
MT2	**10**	**17**	**NEC 3317, 3319 NOT ELIGIBLE**
NC1	**12**	**17**	
OM1	**10**	**17**	NEC 1801, 1820-21, 1918 NOT ELIGIBLE
OM2	**10**	**17**	NEC 1801, 1820-21, 1918 NOT ELIGIBLE
PC1	12	**17**	
PC2	**10**	**17**	
PH1	**10**	**17**	
PH2	**10**	**17**	
PN1	**10**	**17**	
PN2	**10**	**17**	
PR2	**10**	**17**	
QM1	**12**	**17**	**SURFACE COMPONENT ONLY. NEC 0161, 0167, 0215-16 NOT ELIGIBLE**
QM2	**10**	**17**	**SURFACE COMPONENT ONLY. NEC 0161, 0167, 0215-16 NOT ELIGIBLE**
RM1	**10**	**17**	**SURFACE COMPONENT ONLY.**
RM2	**10**	**17**	**SURFACE COMPONENT ONLY.**
RP1	**10**	**17**	
RP2	**10**	**17**	
SH2	**10**	17	
SH1	**12**	17	
SK1	**12**	**17**	**SURFACE COMPONENT ONLY. NEC 2824 NOT ELIGIBLE**
SK2	**12**	**17**	**SURFACE COMPONENT ONLY. NEC 2824 NOT ELIGIBLE**
SM1	**10**	**17**	
SM2	**10**	**17**	
STS1	**10**	**17**	NEC 0418, 0419 NOT ELIGIBLE
STS2	**10**	**17**	NEC 0418, 0419 NOT ELIGIBLE
WT1	**10**	**17**	
WT2	**10**	**17**	
YN1	**12**	**17**	
YN2	**10**	**17**	

NOTE 1. INELIGIBLE AIRCREW NECS: 8203, 8215, 8226, 8235-38, 8251-52, 8262, 8284.

05 JUN 92 - NAVADMIN MSG announcing FOURTH Phase - VSI/SSB programs FY92

* 05 JUN - 30 JUN 92 *

RATING	YOS	YOS	NOTES
ABE1	10	17	
AD2	10	17	
AE1	12	17	NOTE 1.
AE2	10	17	NOTE 1.
AK1	13	17	NEC 2824 NOT ELIGIBLE
AK2	10	17	NEC 2824 NOT ELIGIBLE
AMS1	12	17	NOTE 1. NEC 7222, 8305, 8331 NOT ELIGIBLE
AMS2	10	17	NOTE 1. NEC 7222, 8305, 8331 NOT ELIGIBLE
AO1	12	17	NOTE 1.
AO2	10	17	NOTE 1.
AT1	10	17	NOTE 1. NEC 6628, 6633, 6650, 6659, 6689, 6695 NOT ELIGIBLE
AT2	10	17	NOTE 1. NEC 6628, 6633, 6650, 6659, 6689, 6695 NOT ELIGIBLE
AW1	10	17	NEC 7815, 7825-27, 7841, 7846, 7873, 7876 NOT ELIGIBLE
AW2	13	17	NEC 7815, 7825-27, 7841, 7846, 7873, 7876 NOT ELIGIBLE
AZ1	11	17	
AZ2	11	17	
BM1	10	17	NEC O161, 0167, 0215, 0216 NOT ELGBLE
BM2	10	17	NEC O161, 0167, 0215, 0216 NOT ELGBLE
DC1	14	17	
DC2	12	17	
DK1	10	17	
DK2	10	17	
DM1	10	17	
DM2	10	17	
DP1	10	17	
DP2	10	17	
DS1	10	17	
DS2	10	17	
DT1	14	17	NEC 8753 AND 8765 NOT ELIGIBLE
DT2	13	17	NEC 8753 AND 8765 NOT ELIGIBLE
EM1(SW)	10	17	NEC 4707 NOT ELIGIBLE
EM2(SW)	10	17	NEC 4707 NOT ELIGIBLE
ET1	10	17	NEC 14TG, 1420, 1428, 1450 NOT

ELIGIBLE
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ET2          10      17              NEC 14TG, 1420, 1428, 1450 NOT
ELIGIBLE
EW1          10      17              NEC 1734 NOT ELIGIBLE
EW2          10      17              NEC 1734 NOT ELIGIBLE
FC1          10      17              NEC 1102-08, 1114-15, 1118-19,
1121, 1127,1143-44 NOT ELIGIBLE
FC2          10      17              NEC 1102-08, 1114-15, 1118-19,
1121, 1127,1143-44 NOT ELIGIBLE
FTB1         10      17
FTB2         10      17
GMG1         10      17              NEC 0878, 0879 NOT ELIGIBLE
GMG2         10      17              NEC 0878, 0879 NOT ELIGIBLE
GMM1         10      17              NEC 0981 NOT ELIGIBLE
GMM2         10      17              NEC 0981 NOT ELIGIBLE
HM1          13      17              NEC OOOO, 8404 ONLY
HM2          12      17              NEC OOOO, 8404 ONLY
IC1          10      17              NEC 4709, 4711-12, 4721, 4745,
4747 NOT ELIGIBLE
IC2          10      17              NEC 4709, 4711-12, 4721, 4745,
4747 NOT ELIGIBLE
IM1          10      17              NEC 1821 NOT ELIGIBLE
IM2          10      17              NEC 1820-21 NOT ELIGIBLE
JO1          10      17
JO2          10      17
LI1          10      17
LI2          10      17
MM1          10      17
MM2          10      17
MN1          10      17
MN2          10      17
MS1          10      17              SURFACE COMPONENT ONLY
MS2          10      17              SURFACE COMPONENT ONLY
MT1          10      17
MT2          10      17
NC1          12      17
OM1          10      17              NEC 1821, 1918 NOT ELIGIBLE
OM2          10      17              NEC 1820-21, 1918 NOT ELIGIBLE
PC1          10      17
PC2          10      17
PH1          10      17
PH2          10      17
PN1          10      17
PN2          10      17
PR1          10      17              NEC 7352,7353 NOT ELIGIBLE
PR2          10      17              NEC 7352,7353 NOT ELIGIBLE
QM1          10      17              SURFACE COMPONENT ONLY.  NEC 0161,
0167, 0215-16 NOT ELIGIBLE
QM2          10      17              SURFACE COMPONENT ONLY.  NEC 0161,
0167, 0215-16 NOT ELIGIBLE
RM1          10      17              SURFACE COMPONENT ONLY.
RM2          10      17              SURFACE COMPONENT ONLY.
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RP1          10      17
RP2          10      17
SH1          10      17          NEC 3111 NOT ELIGIBLE
SH2          10      17          NEC 3111 NOT ELIGIBLE
SK1          10      17          SURFACE COMPONENT ONLY.   NEC 2824
                                 NOT ELIGIBLE
SK2          10      17          SURFACE COMPONENT ONLY.   NEC 2824
NOT ELIGIBLE
SM1          10      17
SM2          10      17
STG2         10      17          NEC 0401, 0407, 0410, 0414-17,
0428, 0430, 0439, 0455, 0488,                     0490    NOT
ELIGIBLE
STS1         10      17          NEC 0418, 0419, 0422 NOT ELIGIBLE
STS2         10      17          NEC 0418, 0419, 0422 NOT ELIGIBLE
WT1          10      17
WT2          10      17
YN1          10      17          SURFACE COMPONENT ONLY.   NEC 2514
NOT ELIGIBLE
YN2          10      17          SURFACE COMPONENT ONLY.   NEC 2514
NOT ELIGIBLE
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NOTE 1.   INELIGIBLE AIRCREW NECS: 8203, 8215, 8226, 8235-38, 8251-52, 8262, 8284.

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